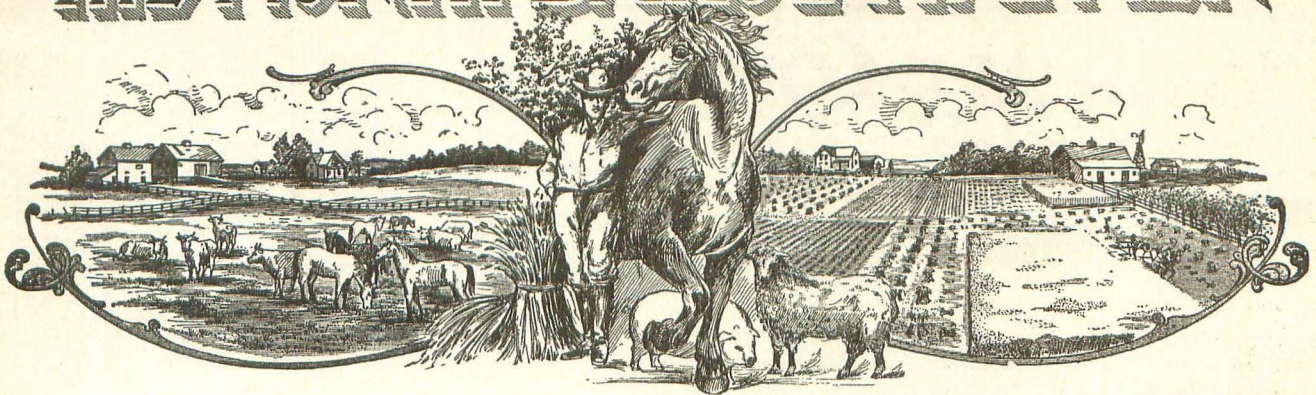


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THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

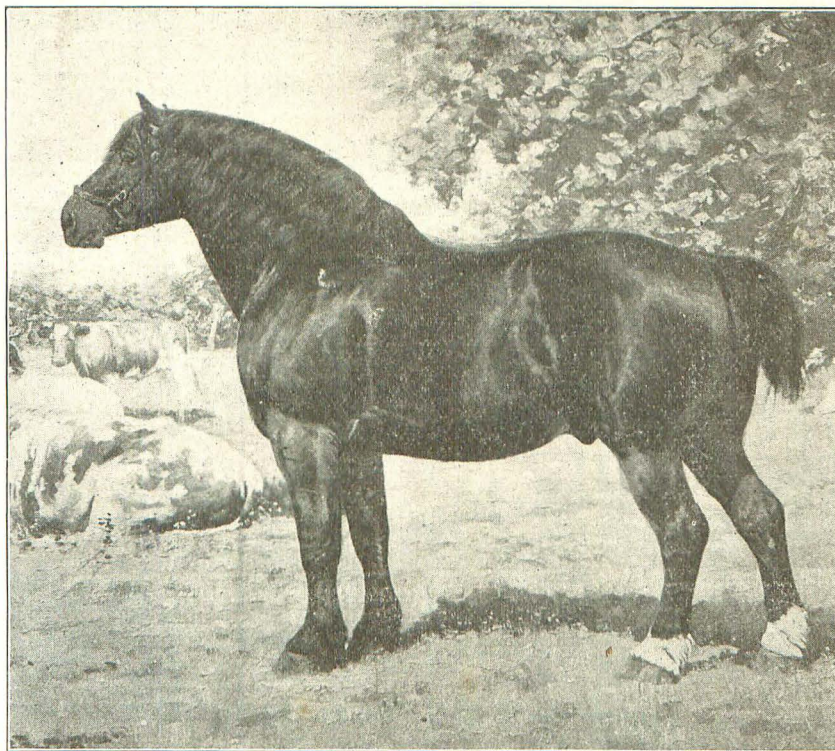
Alex Alin

511

Vol. 10, No. 6
LISBON, N. D.

DECEMBER 15, 1908

50 Cents a Year
FARGO, N. D.



Champion Belgian Draft Horse belonging to M. Jules Van Landuyt, of Brussels.

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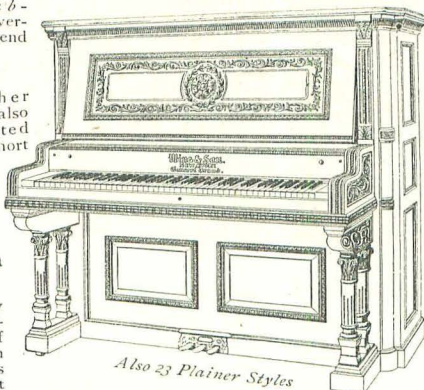
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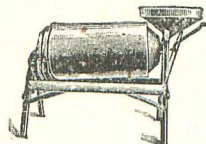
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THE NORTH DAKOTA FARMER

Vol. 10, No. 6

LISBON and FARGO, N. D., DECEMBER 15, 1908

50 Cents a Year

MY EUROPEAN TRIP

By PRES. J. H. WORST, N. D. A. C.

BELGIAN AND FRENCH HORSE SHOWS

Breeding horses is carried on systematically and scientifically in European countries, particularly in Belgium and France. The Belgian is the heaviest of the foreign breeds and is a splendid draft horse. Belgians are all proud of their native horses and the govern-

Brussels, king Leopold in person delivers the government medal or cash prize for the best horse on exhibition.

There are not many extensive horse breeding farms in Belgium, but almost all small farmers keep a few thoroughbred mares which net them a fair income from the highbred colts they produce. In France the government furnishes free stallion service for those who



Annual Show of Draft Horse Society, at Brussel, June, 1908.

ment gives substantial encouragement to horse breeders by offering cash prizes and medals for the best individual specimens that can be bred. The Belgian government gives in cash prizes annually, over \$6,000, while the judges offer additional cash prizes for the classes that are crowded, the size of the prize depending on the importance of the class. Medals, ribbons and favorable mention also are among the contributions.

At the annual horse show held in

desire it, but in that case the government has an option on such colts at a fairly liberal price—for that country. Colts not purchased by the government find a ready market, however, as American and other foreign buyers are constantly on the lookout for this kind of breeding stock for their respective countries.

The Belgian breeders are wise in confining the breeding of horses exclusively to a single type. Judges are regularly and officially appointed by the stud

book association to establish the standard, then all breed to that one standard. The result is a very uniform heavy draft horse of good disposition and of more than ordinary horse intelligence.

The Brussels Exhibition

We visited the horse show in Brussels June 14-15 where 768 stallions and mares, the very cream of the kingdom were on exhibition. They were truly an aristocratic band of horses. While they varied in form and size somewhat and very much in color, yet there was scarcely an individual that did not seem good enough to be a prize winner at any other place. All horses had their tails docked, as is the custom with Belgian breeders, but their manes and foretops were braided and decorated with ribbons or other fancy material, an art in which the Belgian horseman excels.

The exhibition building and stables cover about 10 acres of ground, with arched roof of glass, affording perfect light, and stalls and other equipment sufficient to accommodate the large number of horses that were on exhibition. The main exhibition hall is fenced off into suitable areas for exercising the horses in order to test their wind and movements. It also has elevated galleries containing seating capacity for the thousands of spectators, royal and otherwise, that congregate to witness the show.

How They are Exercised

Horses are all required to undergo sufficient exercise to enable the judges to take account of their movements. The animal while being led by an attendant is urged into a sharp trot by some interested party, usually the owner, who follows behind, freely cracking a whip at the horse's heels. It is really surprising to see how nimbly these great blocky animals handle themselves as they make a run of about ten rods, repeating it two, three or four times. Good movement as well as good conformation counts in the final score.

After this form of exercise, which is kept going all day, the horses are ranged up around the inside of the vast enclosure for general inspection. With nearly eight hundred such horses lined up side by side, representing the very choicest individuals in a country where

horse breeding has been brought as nearly as possible to perfection, the horse fancier is in his element. To him it is paradise.

The Award

After several days of competitive exercise and rigid inspection the prizes and medals are awarded. Many of these horses are fairly covered with medals and ribbons won in previous contests. On the appointed day, amidst the cheers of the thousands assembled, the king appears in the center of the main gallery and from the imperial box presents the government medal and money prize for the best horse in the kingdom. On this occasion after the King awarded the prize, there followed for fully half an hour the wildest sort of jeering, instigated by rival breeders

he had of being the owner of the best Belgian horse in the world.

Breeders quite generally require their stallions to work. Nearly all the heavy drays and truck wagons are drawn thru the streets of the cities or along the country roads by thoroughbred stallions. It is not an uncommon sight over there to see as large a load hauled by a single horse as we require of a two-horse team.

The Belgians claim for their breed the advantage of early maturity. Colts are quite commonly broke to harness when 18 to 20 months old. At six they are in their prime but have already performed fully four years' work. They also work to good old age. Many stallions are kept in service until 22 to 26 years old. An example is cited of a mare at 40 years old giving birth to her thirty-

horses' manes, tails and foretops, which adds much to the attractiveness of the animal.

Here also as in Belgium, stallions do the heavy teaming, but the French almost always drive their horses tandem where more than one is required. Not infrequently as many as three are driven tandem, when an exceptionally heavy load is being hauled.

The Percheron is a beautiful horse and is, in my opinion, somewhat better suited to North Dakota conditions than the Belgian, especially where a little freer action is required. For strictly heavy draft, at a walking pace, the Belgian horse cannot be excelled. It is a case, however, where either seems the better breed if the other is absent.

The latter show was well attended and quite a number of very fine horses were purchased during the show for shipment to America, tho the very choicest could not be bought for exportation. To a horse fancier nothing can be more gratifying than to see, within a single enclosure, several hundred of the finest horses in the world, and all representing some one particular breed.

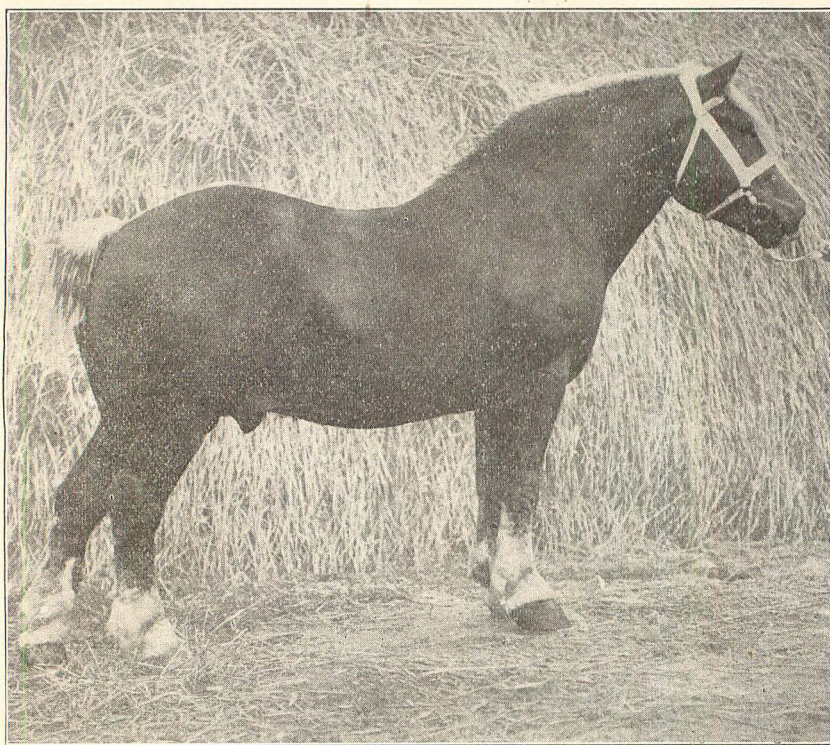
We also visited the horse show at Groningen, Holland, where only Coach horses were shown. The Groningen Coach is very similar to the Oldenberg, a German Coach horse, tho it is a somewhat distinct type, having been bred slightly away from the latter. The Groningen horse is high spirited, active, and makes a very showy carriage animal.

We also visited a horse show in Paris where several hundred animals were on exhibition, both of the Percheron and the French Coach breeds. The exhibit of coach horses here was especially fine and the exercise they were put thru, as at Brussels, showed excellent movement and considerable speed. The French also breed horses, known as "full bloods," especially intended for the artillery and cavalry service and quite a number of these were on exhibition at Paris.

During the year 1898 the French government had for breeding purposes 4283 stallions, all owned or approved by the government, and to these were bred 238472 mares. During the year 1899 the same government paid to competitive breeders, in the form of premiums, for the encouragement of high grade stock, the sum of \$3,237,000.

Germany, tho somewhat of a horse breeding country also, purchases annually something like 7,000 horses from France and 21,000 from Belgium. A great many fairly good stallions also find their way to the United States and Canada every year.

At all these horse shows only the very choicest and most perfect individuals of the several types were to be seen. In



Indigene, Belgian Champion in 1906 and 1907, Property of M. Jules Van Landuyt, Brussels.

whose horses failed to win the prize. The same horse had won the government prize two years in succession, which provoked a tremendous outburst of disapproval, manifested by paid jeerers, so we learned. At least the secretary to the man whose horse won the prize declared that the horse would not again be entered for the sweep-stake prize, but that the following year they intended to get even by hiring several hundred men to jeer the successful horse. This seems to be the Belgian's method of manifesting a spirit of emulation. The jeering was good natured, however, and must have been but a trifling humiliation for Mr. Jules Van Landuyt to bear, considering the honor

second colt. It is also claimed for the Belgian breed that they readily adapt themselves to the conditions of any country or any climate.

At Nogent le Routrou

While in France we attended the great horse show at Nogent le Routrou where nearly as many horses were on exhibition as at Brussels, except that this was a Percheron horse show. The Percheron does not average as heavy as the Belgian but is a rangier animal and a somewhat better roadster. Both are quite heavy, the Belgian weighing from 1800 to 2100 pounds for mature stallions and the Percheron weighing from 1600 to 1900 pounds. The French grooms also are quite expert in decorating their

every instance the judges were selected by the highest authority and the respective governments and the Agricultural Associations joined in making the exhibits strictly educational and for the purpose of bringing the particular type of horse bred in that community or country as nearly as possible to an established standard.

Right here we make a great mistake. There is no unity of purpose in our method of breeding horses or cattle. Every breeder selects some breed that suits his fancy and "goes it alone," with the result that no one succeeds to any great extent and the State gains no reputation for any particular breed of stock. There is no co-operation, which makes every breeder's work more expensive and more difficult.

employed so that that particular breed does not become discredited. The stud books are honestly kept and in time the reputation of their stock becomes world wide, whereas, if every man were to breed to suit his own fancy they would have no reputation at home or abroad.

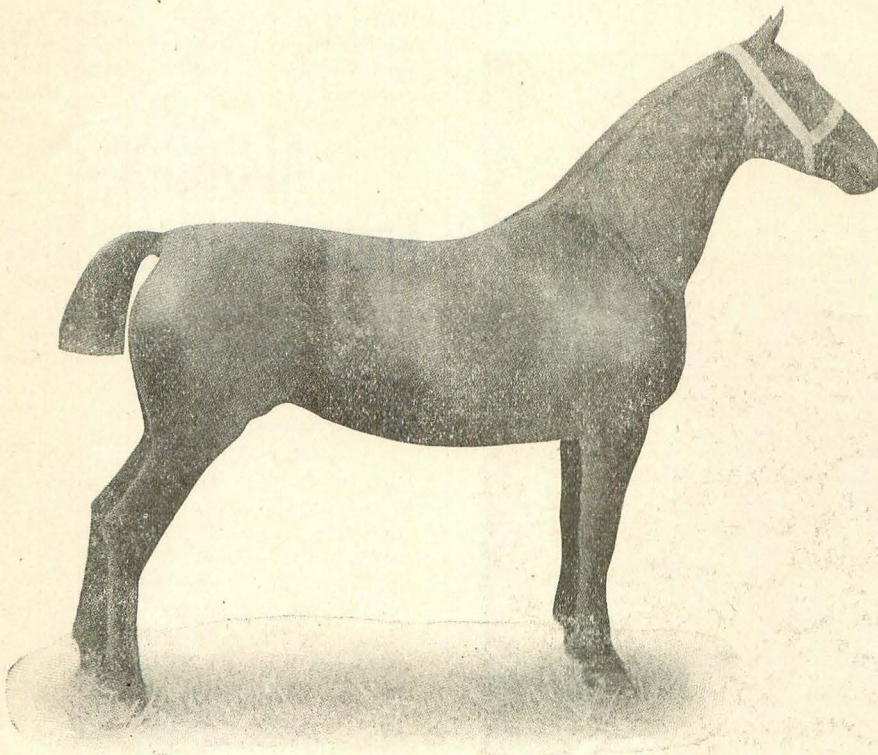
I have often thought that if North Dakota breeders of horses or cattle were to unite upon some one breed of either and co-operate as thoroly as these foreigners do, with our incomparable grasses and other natural advantages, we could in time establish a reputation that would insure a demand for thoroughbred stock equal to our utmost possibilities for supplying it. If even a considerable section of the state were to thus intelligently co-operate the results would prove gratifying beyond any-

and to meet the demands of local markets. To do this most economically and most successfully requires the co-operation of all breeders of livestock, even, if necessary, to the establishment of new types by combining the desirable qualities of several of the prevailing types of the different breeds. It would not be inconsistent for North Dakota breeders to get together and co-operate in the breeding of a special type of horse, or cow, or sheep, or hog, or of all these, to meet the peculiar conditions of the northwest. It would require time and the exercise of great breeding skill, but the end would doubtless justify the expense and patience required. If nature unaided can multiply types, and communities in the old world have not only multiplied those types but vastly improved them, why should North Dakota breeders feel unequal to the task of developing strains or types of livestock to meet our peculiar food and climatic conditions.

DRY FARMING

By Prof. L. R. Waldron, Dickinson, N. D.

We hear much in these days of dry farming and dry farming methods. Viewed in a narrow sense and as exploited by certain more or less visionary people, dry farming means scarcely anything more than the alternation of grain crops with cleanly tilled, summer fallowed land. While we do not pretend to be a judge of agricultural conditions in other states, yet for western North Dakota, nothing is more certain than that such a system, exclusively followed, is foredoomed. Such a system is all the more dangerous from the fact that it is apparently successful for a few years. The crops are increased and in many cases in a remarkable manner. This apparent success does not alter the fact, however, that the method, if continued, will somehow or another destroy the stamina of the soil. It would be almost equally absurd to condemn the practice entirely for clean summer fallow certainly has its place. The farmers that practice clean summer fallowing do not, as a rule, use stable manure. It is right here that the trouble comes in. The conditions that govern the summer fallow are such that the organic matter or humus of the soil is rapidly used up or oxidized. The loss of the humus puts the soil in poor physical condition and in addition a loss of humus entails a loss of nitrogen which is perhaps the most important plant food in the soil. The poor physical condition of the soil is noticed principally in two ways. It "blows" more easily than before and it has lost to a certain extent the ability to hold moisture which it



Irene, No. 1291, a Gronigen Coach Horse.

In Belgium, all breed Belgian horses. They love no other horse. The Belgian is their pride and every effort is put forth by individuals and by the government to maintain for their horses the highest and most uniform standard and to give them a reputation all over the world. And they have succeeded. The Belgian horse is the glory of Belgium, made such by the united and continuous co-operation of all the breeders and farmers of the kingdom.

The same is true in France of the Percheron and the Coach. Large communities unite upon one or the other of these breeds and then all breed the same style of horse. In this way the community becomes noted for that particular industry and every breeder is on the alert to see that only honest methods are

thing that can be hoped for where almost every breed of horses and cattle are bred in an individual way.

Co-operation has made the Belgian, the Percheron, the Shire and other breeds of horses world famous, and the same may be said of the Holstein Friesian, the Jersey, the shorthorn and the Hereford among cattle. For the very choicest specimens of any of these improved breeds we still go back to the fountain source, the community that makes an exclusive specialty of breeding that particular type of animal.

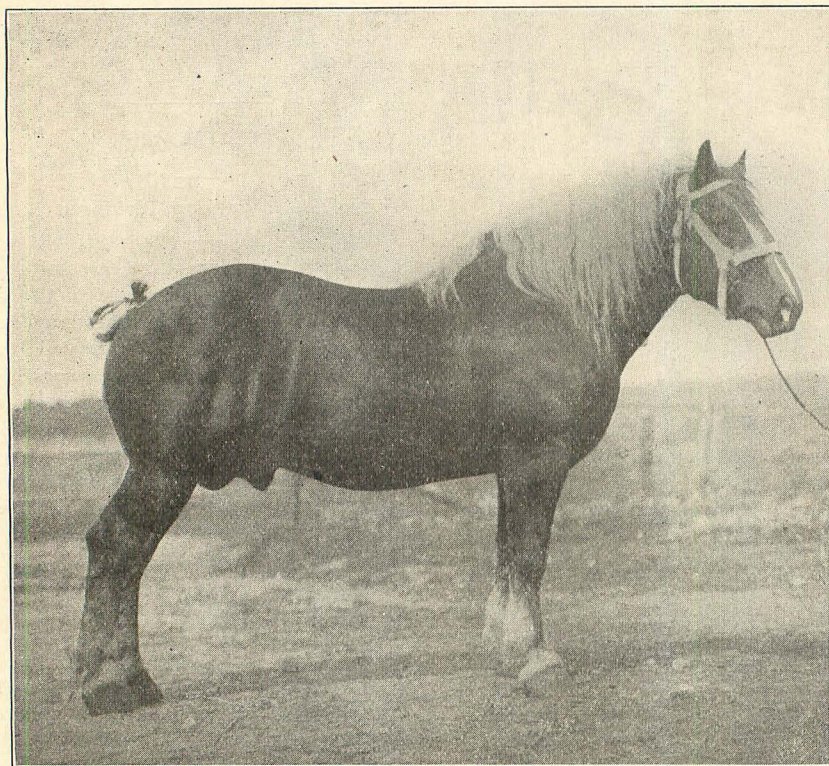
North Dakota breeders should engage more generally in developing special strains of livestock for the dairy or for beef, and horses for draft or carriage purposes, while hogs and sheep also should be bred to most local conditions

had as a virgin soil. Now there are characters which a good soil should have in a region of light rainfall and much wind. A good soil should not "blow" and it should have a great water holding capacity. If a farmer has such soil upon his farm it is up to him to keep it in such a condition. How can this be done?

There are two ways in which the humus of the soil can be increased. One way is to apply stable manure to the land. The application of manure not only adds humus but it brings to the soil, potash and phosphoric acid. Another method of adding humus is to turn under organic matter that grew on the land. A grass crop may be grown for a few years and after it has become well rooted, the stubble is plowed under

is the second great thing for the farmer to learn. Perhaps these might be considered the two great commandments.

From what has been said it is evident that the writer believes that there is something more to dry land farming than an alternation of grain and cleanly tilled land. There is also something more than in the two principles just laid down. If a farmer has these two principles well grounded into his system then he has made considerable advance. It will be noticed that these two principles are much the same as those held by good farmers in the more humid states. A farmer, to make his profession successful, must farm according to these two principles, modified to suit the peculiar climatic and soil conditions with which he has to deal.



Gambrinus, Colt of Brin d'Or, Belgian Champion at the International Horse Show at Milan, 1906. Property of M. Jules Van Landuyt, Brussels.

and the rotting of the grass stubble and the innumerable roots adds a store of humus to the soil that can be drawn up on by many grain crops. The retention of humus in the soil is one of the first great things that the dry land farmer should learn. To be sure it is not the only thing nor need the humus be added the first thing after the new sod is turned over. The principle however should always be kept in mind. Now a farmer would be foolish to grow grass if he did not have stock and he would not be able to apply barnyard manure unless he were raising stock. So it is evident that a successful dry land farmer must be a raiser of stock, at least to a certain extent. The growing of stock

FROM THE DICKINSON SUB-STATION BULLETIN

Reviewed by Wm. Lanxon

Every settler new or old should plant trees, as they are profitable from any standpoint, and if given proper care will certainly grow. Three important principles govern tree planting in semi-arid regions. They should be grown in large numbers, planted closely together and kept well cultivated. The following varieties are recommended for setting: box elder, green ash, elm, and soft maple. Cottonwoods are not included in this list as they cannot be planted close together.

Among the most suitable plants for hedges are the buffalo berry, wildplum, Golden Russian Willow, Russian wild olive, buckthorn, soft maple and Siberian pea tree. The Buffalo berry and the Russian wild olive are especially valuable as hedges as these plants will readily turn cattle.

Among the ornamental plants suited for Western Dakota conditions are to be found the Tartarian honeysuckle, Siberian pea tree, lilacs, meadow sweet, Rosa rugosa (a member of the rose family) and native shrubs such as Buffalo berry, wild plum, etc.

Corn, the millets, sorghums and timothy also are profitable crops.

The bulletin also treats on the subject of poisoning of prairie dogs and gophers, weather data, etc.

Any student, farmer or teacher may have a copy of this bulletin by addressing the experiment station.

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A new industry that will rival gasoline is that of denatured alcohol for light, heat and power. Five thousand feet of natural gas costs 6 cents per 1,000 feet, containing 94 per cent of methane, will produce 50 gallons of alcohol, 5 gallons alcohol equal one cord of hard wood of one and three-tenths tons of soft coal in heat units. On the basis of 100 horse power 10 hours run one year, alcohol at 30 cents per gallon approximates \$234; coal at \$4 per ton, \$3,400; the yearly saving equals 6 per cent on a capitalization of \$65,000. We propose to your commercial club to establish a new industry, manufacturing alcohol from natural gas at low cost, employing from 10 to 45 men, according to the capacity of the plant. Alcohol is a necessity on land and sea. The automobile and the navies of the world use it, the market demands it. We are ready to negotiate for this new manufacturing industry in your locality. Will you allow us to come in?

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the most liberal offer you ever read before. Just think, you get this grand big doll, this set of doll's furniture of 5 pieces and this fine china set of 27 pieces all absolutely free. Not merely your choice of one, remember, but all three of them, just for a few moments of your time. You can't afford to overlook this offer. It is the opportunity of a lifetime to get just what you have always wanted without costing you one cent. Read this grand offer right now. WRITE ME ABOUT IT AT ONCE.

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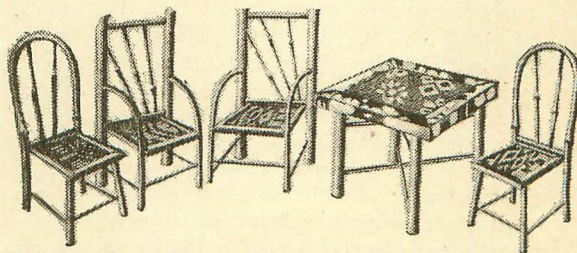
GIRLS

don't miss this chance of a lifetime to get the biggest and finest doll you ever owned. This is a great big doll with expensive Bisque head! face and features just as natural as life, with pearly teeth, rosy lips, sparkling blue eyes, pink and white complexion, beautiful hair that looks like real. This big, magnificent doll is nearly two feet high, has jointed body, so that dolly can sit up or lie down, just as you want her to do. She is stylishly dressed in a genuine satin dress with lace trimming, has complete set of underwear, open work stockings, patent leather shoes and big, Floradora hat. You can dress and undress dolly; and she also opens and closes her eyes, just like a real baby. You will be proud to own this doll and show it among your friends—it is the dearest and sweetest doll you could imagine. When you see her you will be astonished to think you could have such a fine, beautiful doll as this all for your very own.

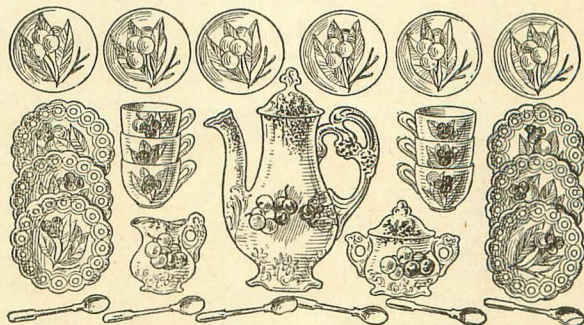
I WANT TO GIVE every girl reader of this paper one of these magnificent dolls free and also the two other big presents, and I want to do it right away. My object is to advertise our business and all I ask in return is a little simple effort on your part, that will take but a few moments of your time.

This is Absolutely and Positively the Most Generous Offer Ever Made You

I will include with each and every doll given away a set of beautiful doll furniture just as shown in illustration, consisting of 2 arm chairs, 2 plain chairs, and one square table. The table and chairs all match and make one of the handsomest little sets of doll's furniture ever offered. And in addition to this set of furniture, and to make everything complete, I am also going to give the Doll China Set of 27 Pieces, consisting of 6 cups, 6 saucers, 6 plates, 6 teaspoons, teapot, six teaspoons, so that you can give a real tea party. With this furniture and china you can set dolly up in housekeeping and give doll tea parties and entertain your friends and their dolls just like grown up people.



Doll's Furniture Set FREE



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DO IT NOW

NOW GIRLS All I ASK IN RETURN for these three grand gifts, is for you to show Card Sets in your neighborhood. You don't have to sell these pictures and post Cards, just show them among the people in your locality and you can easily dispose of them in a few hours time as a receipt on my big 25c offer. These beautiful pictures are 16x20 inches in beautiful colors, with gold litho frames, all ready to hang on the wall in the parlor or sitting room. The set of Post Cards are beautiful glazed "Language of the Flowers" cards. Just show these people the grand offer I have made you and they will take one of these elegant pictures and Post card sets from you. After you have disposed of these 14 pictures and Post Card Sets, which you can easily do in a few hours time, on my new plan, I will send you as a reward for your trouble this big, magnificent doll, just as described, also, the furniture set and china set. I don't charge you anything for the pictures and Post Cards, as I send them free, and you can try and see what you can do and if you can't distribute them on my plan, simply handing them out as a receipt, they can be returned at my expense. However I know any bright woman or girl can earn these presents without any trouble whatever. As soon as you have distributed them I will send you the Doll, Furniture Set and Tea Set absolutely free. I arrange to cover all express charges, so they will not cost you a penny.

Remember, you get all 3 of these presents, the big, magnificent doll, the handsome set of doll furniture and the china set, all for the small amount of effort required in showing my picture paintings and new Flower Post Cards among the people in your neighborhood.

DO NOT MISS THIS OFFER. It is positively the biggest and most liberal offer you ever saw. It is only made for introductory purposes. It means just what it says. It is not an offer for "your choice" of these presents, but you get all of them—the big 2-foot Bisque Doll, the 5-piece Bamboo Furniture Set and the 27-piece Doll's Tea Set, mentioned. Be the first in your town to get these grand presents.

SHOW THE GRAND OFFER TO YOUR PARENTS

They will be glad to help you if you do not understand it. Just write me anyway. It is not even necessary to write a letter, unless you want to. Just your name and address will do. I will know that it is in answer to this advertisement and will have everything arranged for you to get these free presents. Remember, I arrange to pay all express charges—so they will not cost you a single cent. I will also include a nice present for mama if you will write me at once. Send today and address me plainly.

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FROM THE NATION'S CAPITOL

By GUY E. MITCHELL

NEW WESTERN FARMS

The office of the Reclamation Service in Washington, looks these days like a big immigration department of some transcontinental railroad opening up a big land grant, and probably Clarence J. Blanchard, who has charge of placing settlers on government irrigated lands has more farm correspondence from farmers wanting western homes than any four real estate or land firms in the United States. And Mr. Blanchard knows what he talks about for he has visited during the summer all the government irrigation projects which have land left for settlement—and he knows what they can produce. I was particularly interested in his account of the Sun River project in Montana where a great area of magnificent land is being thrown open to settlement, for it happens that when the first surveys were made for this reclamation scheme, I rode and drove all over the irrigable land and then took a trip with the government supervising engineer, Sam Robbins, far up into the Rocky Mountains near the head waters of the Sun River, looking around with him for a possible reservoir or dam site. It was a little later in the fall than the date of this writing, and we barely escaped getting caught by an early snow storm and penned up in the high mountains. The Sun River project has been a great success from an engineering standpoint and from my recollection of the broad expanse of high, rolling table lands, with soil of the richest of loam, finely disintegrated rocks filled with plant food and which has lain dormant for ages in that semi-arid climate, I should predict as great a success for it as a homemaking and agricultural project. This land is adjacent to Great Falls and some of the crops which I saw growing in the vicinity were remarkable in yield. The work has progressed rapidly and several farms have been thrown open to settlers on very liberal terms.

These farms will be obtainable under the homestead law, subject to the charges of actual cost of water upon the number of acres actually supplied with water from the system. This charge has been fixed at \$30 per acre, divided into not less than five nor more than ten annual payments. The sum of \$3.50 will be due and payable at the time of making entry. The second installment will be payable March 1, 1910, thus allowing early settlers nearly two years before second payment is due. In this period any industrious settler can get his land in shape to earn its own repay-

ment of the charges.

An interesting and unique feature in connection with the project is the proposed establishment of model rural villages every six miles. In all there will be 20 of these, so that no farm will be more than three miles from a postoffice and school.

All the crops which can be grown in northern countries can be raised here. It is probable that the principal crops raised will be alfalfa, sugar beets and potatoes. Usually three cuttings of alfalfa are made annually, and the average yield is about five tons per acre. The present price, says Mr. Blanchard, varies from \$5 to \$15 per ton in the stack, according to location and demand. It is not probable that the average price will drop below \$5 for many years.

The average yields for the State, according to the figures of the Department of Agriculture, per acre, are, potatoes, 228 bushels; wheat, 29 bushels; oats, 69 bushels, sugar beets, 20 tons.

All garden truck is easy to raise except tomatoes and some kinds easily affected by frosts, tho these with care may be grown sufficiently for family use.

An ordinary ranch garden in the vicinity in 1905 produced a net profit of \$225 per acre from the following kinds of vegetables; cabbage, potatoes, tomatoes, squash, onions, pumpkins, carrots, turnips, and beets.

The sugar beets grown in the vicinity have analyzed 23% sugar. The beet industry promises great things and a sugar factory is assured upon the completion of the works necessary to irrigate an area large enough to guarantee five-year contracts on 5,000 acres of beets. Past experiments prove that the farmer should average a net profit of \$40 per acre on sugar beets.

Cement Takes Place of Wood

During the past five years the production of cement has doubled—increased from 25,000,000 to 51,000,000 barrels, due largely to the greater use made of it on farms and for rural dwellings. The relation of the increasing use of cement to the diminishing timber supply has been the subject of some interesting correspondence between the Geological Survey and the Forest Service at Washington. Director Smith of the Survey in a letter to Forester Pinchot quoted from a statement of a large Philadelphia firm to the effect that it would be difficult to estimate what the additional drain upon the lumber supply of the country would have been, had not cement of late come into such general use. Mr. Pinchot replied in part as follows:

The Forest Service is watching with a great deal of interest the increasing use of cement and other substitutes for wood. They are undoubtedly having some influence upon the price of lumber, tho I do not think that up to the present time they have greatly retarded the advance in lumber prices. The fact is, that our industrial progress has been so

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great that our requirements for every kind of structural material has increased tremendously. We are using at the present time, more lumber per capita than ever before and probably twice as much as we did fifty years ago. The conclusion cannot be escaped therefore that in the future we must depend more than in the past upon other materials than wood for certain purposes at least. As to the increase which will take place in the production of cement, you are of course better able to judge than I, but it is my impression that this increase will be very great.

If the increase in the use of cement in the United States in past years is to be regarded as any index to the future, the conclusions of the Chief Forester are well grounded. The statistics of the production of mineral resources show that cement production has more than doubled in the last five years and it is a well known fact that its use is being very widely extended. This is due to two conditions, first, that excellent cement materials are common in almost all sections of the country and second, that reinforced concrete for heavy building material is coming to be brought into increasing favor with engineers, while in the country sections large amounts are being used for building blocks for smaller structures.

When Is Cheese Not Cheese?

This is a question which the Bureau of Chemistry of the Department of Agriculture has at last decided and has come out flatfooted with the answer, "When it is 'soaked curd.'"

Doctor H. W. Wiley, Chief of the Bureau of Chemistry said that this pseudo-cheese is produced by soaking the curd at a certain stage in cold water, draining it and putting the curd to press. This treatment is carried on solely for fraudulent purposes. First, it introduces an undue amount of water in the cheese, thus increasing the weight, and, second, it gives a soft texture and an appearance of superior quality, which deceives the purchaser as to its real nature. Cheese thus produced is of inferior quality, for it develops less of the desirable cheese flavor than it otherwise would, and it deteriorates greatly in quality before the curing process is complete.

This type of cheese can not, continued Doctor Wiley, under the food and drugs act, enter interstate commerce nor be sold in the District of Columbia or the Territories under the name of **Cheese** unless this name be further characterized. In the future this product must be labeled "Soaked Curd Cheese."

Revenue Stamps Must be Destroyed

The Secretary of Agriculture and the Secretary of the Treasury have jointly issued a regulation which requires that

whenever any manufacturer's package of renovated butter is empty it shall be the duty of the person who removes the contents thereof to destroy utterly the tax-paid stamp on such empty package. Any person having in his possession empty renovated butter packages the tax-paid stamps on which have not been destroyed will be liable to a heavy penalty.

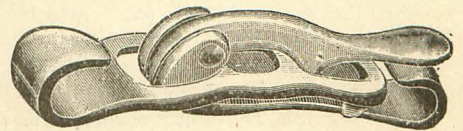
Effect of Freezing on Quality of Butter

A series of trials were made at the Vermont Experiment Station wherein milk was divided into two lots, one-half allowed to freeze and the other handled in the usual manner; then churned, the butter worked and scored. Neither skimming, ripening nor churning appeared to be impaired. Not so, however, with the scoring. The average scores of two sets of 15 lots each were: frozen butter, 93.2 normal butter 93.5. Freezing tended very slightly to lower the grade of the butter, yet freezing is not necessarily a menace to good butter-making. It should not be inferred, however, that infrequent creamery receipts, delivered more or less frost bitten, will make as good a butter as if they had been delivered unfrozen.

Good Roads Argument

Official figures show that during the year 1906 it cost 3.8 cents per bushel to carry wheat from New York to Liverpool, a distance of 3,100 miles, while in the same year the American farmer paid 1.6 cents more to carry a bushel of wheat from his farm nine miles to the nearest market place by wagon, part of which was probably in stealing fence rails with which to pry his wagon out of mudholes or ruts. This a good item to stick in the hat when an argument is commenced relative to the value of good roads, for it does not take a scientist or a very deep thinker to see that with better roads the hauling cost will be reduced.

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Of all things the young people like, and long for, they'll get the most fun, and the most good, out of skates.

It's because skating is such fun—because it fills the lungs with so much beneficial air—that it does them more good than any other winter exercise.

It develops them all over—lungs, legs, the whole body; makes them strong, husky and healthy. So, let your boys and girls make the most of this great winter sport.

Give them a pair of Barney & Berry Skates for Christmas—the keenest, the truest, the best skates you can buy.

The kind which fathers for three generations have bought for their children.

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Skating is always plentiful. We're sure to get our full share of ice every year.

If not in December, then in January and February.

You can get Barney & Berry Skates at almost any dealer's. In all styles. Should your dealer not have the particular kind you want, he will get them for you.

Our free catalog will help you choose the skates your boy or girl wants.

Write for it to-day, while you've time before Christmas.

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Barney & Berry Skates

HOW TO PRODUCE THE IDEAL TURNIP

While the experiment stations in this country and in Europe have spent much time experimenting with the turnip, consequently producing much scientific and popular literature on the subject, no reference has been found in the variation of the character of the root system.

The Department of Agriculture, Office of Experiment Stations, has received the report of experiments made at the Rhode Island Experiment Station recently which had in view the attainment of a root which requires the least trimming and least waste to give it an appearance quick to bring sales on the market. Some seasons and in some locations the root will be perfect in shape, well formed and full, with only one or two tap roots, and free from numerous smaller crooked roots which injure its appearance, also its salability and keeping qualities. The special object of the experiment was to determine, if possible, the effects of moisture, fertilizers, and different kinds of soil on variations of the root system.

The soils used in the experiment were as follows:

1. Sandy. This was made by mixing clean sand with garden soil in equal proportions.

2. Garden soil. This was simply soil taken from the college garden.

3. Humus. This was really leaf-mold obtained from a forest, and was consequently decidedly acid.

4. Silt loam sub-soil. This was a sub-soil of fine texture approaching clay, tho it was a silt loam.

It was found from the experiments that garden soil produces the best grade of turnip, both as to tops and roots than the other plots. Lime is of no benefit when applied alone except, as is generally known, when applied to a humus soil, which is acid. Lime is nevertheless helpful on many ordinary soils, at least under field conditions; yet it should only rarely be used without other manures. Chemical manures or fertilizers have little effect on the growth of the roots, but on the other hand increase the growth of the tops.

The main object of the experiment, however, was to determine, if possible, the effect of moisture on the root growth. The results were distinct and quite uniform in all four soils. It was found that in the wet soil the fine roots were more numerous and that they covered over two-thirds of the area of the turnip, coming nearer the surface. The larger taper roots were also more numerous and shorter, and instead of coming from the bottom, or near the bottom of the turnip, they also grew from the side. This necessitated a large amount of trimming, which greatly injures the market value and the keeping qualities

of the product. It was also found that those turnips grown on the wet soil were more scabby than the others, some being so badly scabbed as to be useless for market purposes. The turnips grown under normal conditions, however, on the other hand, were smooth, and comparatively free from scab. These had less small roots and the large ones came from nearer the bottom, thus leaving a greater area of sound perfect root after trimming. These experiments seem to indicate that the turnip does best on a moderately dry soil.

Up in Wisconsin last spring, in Eau Claire county, the county board adopted a resolution authorizing the various towns in the county to pay a bounty on gophers. Reports received from the towns show that last summer more than \$7,000 was expended as gopher bounty. As a result of this great expenditure, a campaign is now on foot to have the measure repealed.

Epidemic of Foot and Mouth Disease

Closely following the quarantine established by the Department of Agriculture on cattle raised in New York and Pennsylvania, Michigan was placed under the ban and now Maryland is the fourth state to be afflicted with the foot and mouth disease. Fortunately for the handling of the outbreak in the latter state, the work of the departmental cattle inspectors in Pennsylvania is about finished and it will be possible to throw a large force into Maryland at once to deal with the disease.

The officials of the Department of Agriculture explain that there be need of little fear of children being infected thru the milk as one of the first things that happens to a cow with the disease is that she dries up and stops giving milk. Some idea of the great loss which will undoubtedly fall upon the cattle owners in the afflicted states may be gained from statistics furnished by Dr. John R. Mohler, Chief of the Pathological Division, Bureau of Animal Industry. When the federal government was waging the war against the disease which prevailed in four New England states in 1902-3, the Government and states reimbursed the owners for animals slaughtered to the amount of \$128,908.57.

Foot and mouth disease is remarkable contagious and can be carried from stably to stable by a man who walks from one to the other. Dogs, cats and chickens are particularly dangerous as carriers of the contagion.

In some foreign countries millions of dollars' worth of cattle have been lost. An outbreak of the disease amounts to high losses in remarkably quick time. Dr. Mohler in an interview stated that a considerable spread of the disease in this country would entail the entire loss of our export trade in live animals, interruptions of domestic commerce and quarantines which would surpass the loss caused by the ravages of the disease.

Secretary Wilson in speaking on the subject stated that possibly the same methods would be pursued in combating the disease as were adopted several

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years ago in New England. Then an agreement was reached with the states that they were to pay one-third and the Government two-thirds of the value of the cattle which are killed, while the same ratio will be followed with respect to expenses incurred in the destruction of the carcasses. While in 1902 and 1903 the government spent over \$350,000 in fighting the disease, Secretary Wilson stated that he believes more than half a million dollars will be necessary this time to eradicate it.

Forest Service Moving

On December first 75% of the force employed by the Forest Service will leave Washington for the six field district headquarters in the far west. The foresters, clerks and stenographers who are to go to the six cities which are to be the district headquarters will all have started for the field by the first of the month, leaving a force of only about 200 in the Washington office. The 377 who go to the west make up the force at the six offices in Denver; Ogden, Utah; Missoula, Montana; Albuquerque, N. M.; San Francisco and Portland, Oregon.

It is believed that the new field organization of the forest service will greatly facilitate the use of the national forests by the people. It means that the national forest business, which formerly was transacted in Washington, will be handled by officers on or near the ground. The establishment of the district headquarters is the culmination of a plan toward which the forest service has been working steadily since it took charge of the national forests. Each national forest will be in charge of a district forester. The work at district headquarters will be distributed among four offices—operation, grazing, silviculture and products—each equipped with men of special training for the work of their offices.

Flour Must Be Flour

The wisdom of the Pure Food and Drugs Act was exemplified by the evidence adduced in the hearings just concluded by the Department of Agriculture on the "aging" of flour. The strongest evidence against the practice was furnished by its defenders who described the process as follows:

That by means of electricity (with the help of certain nitrous compounds) lower grades of flour can be whitened to the appearance of the best "patent." That this process is now in wide use and that it represents a property value to the miller. In other words this "aging" of flour is similar in effect to the artificial aging of whiskey against which the Department has placed a ban.

The hearings before the Pure Food Board showed that the purpose of the practice is to enable the miller to sell

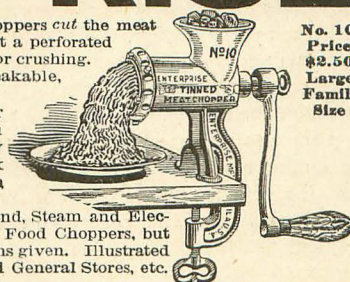
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Meat and Food Chopper

"Enterprise" Meat and Food Choppers cut the meat with a revolving steel knife against a perforated steel cutting plate without tearing or crushing. Easily cleaned. Practically unbreakable, and will last for years.

The No. 5 "Enterprise" Chopper costs only \$1.75. No. 10, shown in cut, \$2.50. They are standard family sizes, and not only save half the work at butchering time, but are useful in the kitchen every day in the year.

Made in 45 sizes and styles for Hand, Steam and Electric Power. We also make cheaper Food Choppers, but recommend the above for the reasons given. Illustrated catalog free. Sold at Hardware and General Stores, etc.



No. 10
Price
\$2.50
Large
Family
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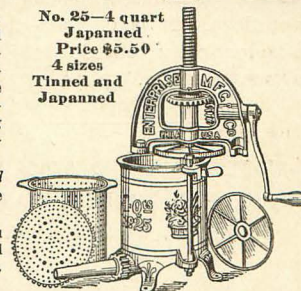
Sausage Stuffer and Lard Press

Lessens the labor at butchering time. Two machines in one. Well made and does its work quickly and surely. Cylinder is bored true and plate fits accurately. Pressure cannot cause meat to rise above the plate. The Patented Corrugated spout prevents air from entering casing, ensuring perfect filling and preservation of sausage.

Machine can be changed into a Lard Press in a minute's time. Can also be used as a Fruit Press.

Your dealer should be able to supply you with the "Enterprise" Sausage Stuffer and Lard Press. If not, order direct of makers.

No. 25—4 quart
Janned
Price \$5.50
4 sizes
Tinned and
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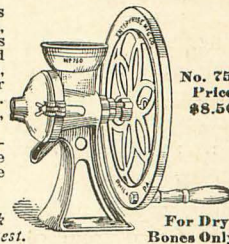
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Bone, Shell and Corn Mill

The "Enterprise" Bone, Shell and Corn Mill is a good, general mill for farmers, poultrymen, etc., and for compactness, strength and durability is unexcelled. Handy for grinding poultry food and making bone meal fertilizer. Mill shown in cut \$8.50, weight 60 lbs., grinds 1 1/4 bu. corn per hour. Look for the name "Enterprise" on the machine you buy. Grind up dry bones, oyster and other shells, corn, etc., for your hens and watch results.

Other famous "Enterprise" household specialties are: Coffee Mills; Raisin Seeders; Fruit, Wine and Jelly Presses; Cherry Stoners; Cold Handle Sled Irons, Etc., etc.

Sold at Hardware and General Stores, etc. Write for "The Enterprising Housekeeper," a book of 200 choice recipes and kitchen helps. Free on request.



No. 750
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Bones Only

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the flour made from inferior wheat at the prices charged for flour made from the best wheat, or flour made from practically the whole wheat berry at prices charged for flour made from the best portion of the berry. The millers who attended the hearings insist on permission to do two things as of right: To sell this product as flour of the best grade and to sell it without revealing this "aging" on the label.

Solicitor McCabe of the Agricultural Department asked one of the witnesses if consumers would object to the word "bleached" being placed on the flour barrels. To this the witness replied that such a label would have no harmful meaning. It would create doubt and dissatisfaction in the minds of the housewives. He said a man adjudged innocent of a crime did not want to have "innocent" branded on him and at this point Secretary Wilson asked him whether he had ever read "The Scarlet Letter."

Doctor Wiley wanted to know all about "aging" flour. He asked what

aging consisted of, and received the reply that when flour is aged it changes color. "It is a process by which flour takes on the same color that it would have if it laid in a warehouse for a length of time."

"Then the word 'age' has lost its significance," said the Doctor. "It means to you, a change of color rather than a lapse of time."

A prominent miller testified that his experience is that the demand is for wholesome flour, not for merely white flour. His reasons for opposing bleaching are that it is hard for buyers to differentiate between grades of flour, thus making deception easy; that it makes the sale of the best unbleached flour difficult in competition with the poorer grades of bleached flour and that bleached flour detracts from the best flavor of bread.

Marcus Bernheimer of St. Louis told of the inception of the bleaching idea in 1903-04. About 1903 the bleaching process became prominent and a close corporation of a few millers threatened

to wreck the whole business by selling bleached flour. He and some of his associates got hold of another process that would do the same work, but he decided that using peroxide of nitrogen on flour was about equivalent to using peroxide of hydrogen on a woman's hair—it spoiled the article. He refused to say whether the nitrating process was poisonous but he exhibited some pipes of a nitrating plan with the residuum thereon, and said that the board could judge for itself.

A company capitalized at \$500,000 has been organized at Atlanta, Georgia, for the purpose of manufacturing paper from cotton stalks, a heretofore useless by-product. It is claimed that paper can be made from cotton stalks at a cost of about \$15 a ton.

TRI-STATE GRAIN AND STOCKGROWERS' ASSOCIATION TO HEAR MANY ADDRESSES NEXT JANUARY

The program for the annual convention of the Tri-State Grain and Stock Growers' association to be held in Fargo, Jan. 19, 20, 21 and 22 has been completed. The program is one of the best ever prepared and will be highly interesting to the farmers and agricultural workers of the three states, North and South Dakota and Minnesota, which annually participate in the tri-state convention.

The program arranges for a miscellaneous collection of addresses on the first day of the convention, the second day will be devoted to crop rotation, the third day will be devoted to live stock and the fourth and last day to horticulture and forestry.

The complete program as arranged is as follows:

Tuesday, Jan. 19, 10 a. m.

1. Prayer.
2. Address of Welcome—Hon. John D. Benton, Fargo, N. D.
3. Good Roads—T. H. Atkinson, state engineer, Bismarck, N. D.
4. Address—Mrs. Ada F. Howie, farmers' institute corps, Elm Grove Wis., on Farm Homes.

6. Appointment of committees.

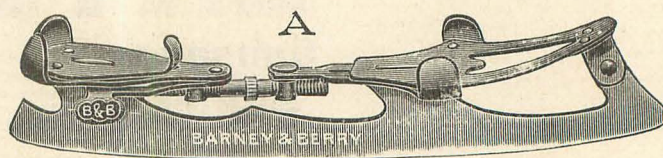
Tuesday, 1:30 p. m.

1. How to Make Good Roads Out of Prairie Dirt—Department of Good Roads, Washington, D. C.
2. Relation of Humus to Crop Rotation—Dr. Briggs, department of agriculture, Washington, D. C.
3. President's Address, The Agricultural Outlook—J. H. Worst, Agricultural college, N. D.
4. The land Where the Farmer is King—Prof. A. G. Arvold, Agricultural College, Fargo, N. D.

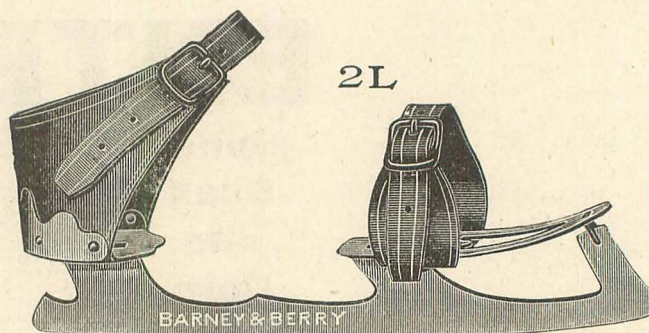
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Boys and Girls, Get Busy

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All express charges paid, if you will send us **FOUR** Subscriptions to **THE NORTH DAKOTA FARMER**.

We sell these skates, express paid, for \$1.25, and they are well worth the money.

There is not a boy or girl who cannot easily secure the four subscriptions within a week. You may offer with The North Dakota Farmer a year's subscription to Successful Farming and a copy of Holden's Corn Culture free with every subscription. Did you ever hear of a better offer? **DON'T WAIT, BUT GET BUSY NOW. TIME IS SHORT.**

ADDRESS

The North Dakota Farmer,

Lisdon, North Dakota

Wednesday, Jan. 30, 10 a. m.

Rotation of Crops.

1. (a) Part That Wheat and Other Small Grains Should Occupy in Crop Rotation—Prof. J. H. Shepperd, Agricultural College, N. D.

2. (b) Part Cultivate and Leguminous Crops Should Occupy in Crop Rotation—T. A. Hoverstad, superintendent farmers' institutes, N. D.

Wednesday, 4:30, p. m.

1. (c) Place Livestock Should Occupy in Crop Rotation—Prof. Andrew Boss, St. Anthony Park, Minn.

2. Reading in the Farm Home—Dr. Max Batt, Agricultural College, N. D.

3. Federal Inspection, Weighing and Grading of Grains—Hon. P. J. McCumber, North Dakota.

Wednesday, 7:30 p. m.

Reception at the Armory, Agricultural College campus.

Delegates and their wives are cordially invited to visit and inspect the college buildings Wednesday evening at 7:30 p. m. After inspecting the building a short reception will be held in the Armory. Speaking, and music by the cadet band.

Thursday, Jan. 21, 10 a. m.

Livestock Day

1. Creamery Construction and Its Relation to the Dairy in North Dakota—R. F. Flint, assistant dairy commissioner, Bismarck, N. D.

2. Preventable Diseases of Livestock—Dr. L. Van Es, Agricultural College

3. How to Care For the Brood Sows During the Winter—H. O. Teller, field representative of The Farmer, St. Paul, Minn.

Thursday, 1:30 p. m.

1. The type of Beef Animal the Market Demands—John Gosling, Kansas City, Mo.

2. Raising Beef Cattle in North Dakota—A. J. McInnes, Dazey, N. D.

3. The future of the Draft Horse Business—H. G. McMillan, Rock Rapids, Iowa.

Discussion led by Donald Hannaford of Hannaford, N. D.

Thursday, 8 p. m.

Meat Demonstration—Conducted by John Gosling, Kansas City, Mo.

Banquet and business meeting of the North Dakota Live Stock Association.

Friday, Jan. 22, 10 a. m.

Horticulture and Forestry

1. Forestry Education the Basis of Forestry—Prof. S. B. Greene, Minneapolis, Minn.

2. The Present Basis of Small Fruit Growing in the Northwest—Fred Heath, Fargo, N. D.

3. The Making of a Landscape—Prof. C. B. Waldron, Agricultural College, Fargo, N. D.

4. A. P. Stevenson, Morden, Manitoba.

Friday, 1:30 p. m.

1. Report of Committees.

2. Election of officers.

3. Our Soils—Arthur Murphy, Orr, N. D.

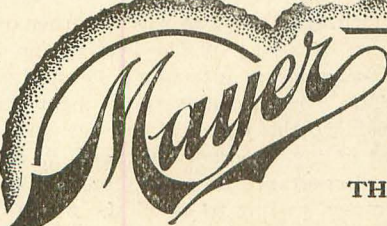
4. Address—W. M. Hays, assistant secretary of agriculture, Washington, D. C.

Friday, 7:30 p. m.

1. Concert by North Dakota Agricultural college cadet band, 7:30 sharp to 8:30.

2. The Profession of Homemaking—Miss Margaret McCarty, instructor domestic science, N. D. A. C.

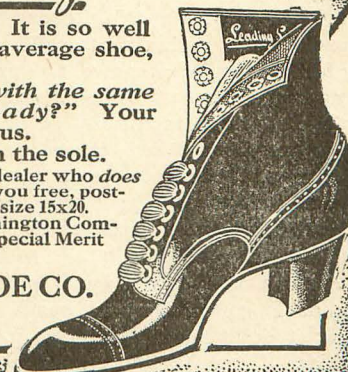
3. Increasing Farm Products—W. M. Hays, assistant secretary of agriculture, Washington, D. C.



Leading Lady

THE CORRECT SHOE FOR STYLE, EASE AND GOOD WEAR

You could never hope to buy a more stylish or serviceable shoe than the "Leading Lady." It is right up-to-date in appearance and fits the foot perfectly from the very first. Besides being stylish and comfortable, the



Leading Lady

wears much longer than most shoes. It is so well made that it lasts twice as long as the average shoe, and will retain its shape to the end.

Why buy inferior shoes when, with the same money, you can get the "Leading Lady?" Your dealer will supply you; if not, write to us.

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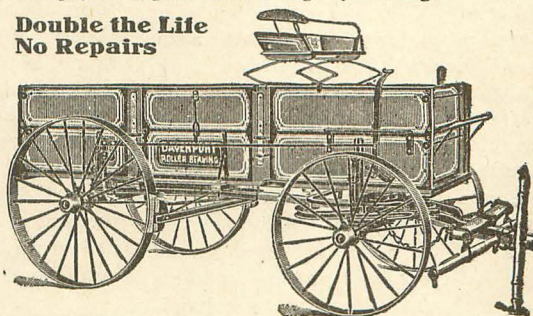
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HUMUS

By O. C. Gregg

Possibly some of our readers may think that this matter of humus in the soil is an agricultural fad with me. This is not so. It is one of those things that are very important, but so everyday and commonplace that it is very sure to be neglected. Just a little thought will make the matter so plain as to its absolute necessity in good soil cultivation, that it won't be so readily overlooked. We must study nature's ways. Her ways are always marked out by a wisdom which does not err. The forest continually adds to the soil that produces it, the yearly return of leaves and from time to time its broken limbs and finally the old tree itself. Forest lands have an abundance of humus. Prairie lands have much less. The yearly burning destroys what would be humus from the yearly growth of grass, and the only source of vegetable decay must come from decaying roots. When we as farmers begin to control the growth from and return to the soil—if we follow cropping and no manuring, we do contrary to the method of nature and each year the growing crop takes off humus, and each year the humus goes back to the earth as it was—and no addition is made.

After a time the original stock of humus is gone; the land has a dead look; it don't resist drouth as it once did and it washes more readily from rains. The yield of crop grows less and less until it won't pay for labor expended. There is fertility in the soil yet but it won't give it up. It will hold it back until some one with intelligence restores that element of humus and then the soil will again "smile with an abundant harvest." Now I don't say that humus is all that is needed to make a soil a good yielder of a crop, but I do say that it must be in the soil as one essential element. We all can put humus in our soils. The best of all methods is to grow clover. Feed clover and get out the manure. Use manure as a topdressing on clover, and let clover grow on the ground where its roots will make vegetable decay without any charge for handling. One of the best of farmers said to me one day, "I would not live in a country and work a farm unless I could grow clover."

I think the man was right, with the understanding that clover means any one of the legumes. I once heard an agricultural teacher say that he thought that too much was being said about humus in the soil.

I cannot agree with him as long as so many fields suffer from the lack of it. But as we have now stated, it is not everything, but it is a "big thing" in any agricultural system.

ALFALFA

Farmers' Bulletin No. 339, entitled "Alfalfa," has just been issued by the United States Department of Agriculture. This bulletin contains a brief resume of the history and spread of alfalfa, which is followed with a rather detailed discussion of the best means of securing and maintaining a stand of alfalfa. The special features under this head are the necessity for inoculation and liming, especially in the East, and the importance of midsummer or late summer seeding to avoid the weeds of summer on one hand and equally the danger of winter killing which attends fall-seeded plants on the other.

In discussing the utilization of alfalfa the relative value of the different forms in which it is used is given as well as the best methods of harvesting and preparing it in its different forms for use as feed. A brief account of alfalfa seed production and alfalfa varieties is given. The enemies of alfalfa are listed and the general methods used in combating them are briefly noted.

The wide distribution of alfalfa in this country necessitates different methods of procedure in securing a stand in the various sections. The country is divided into seven sections and specific instructions adapted to each are given separately for each section.

Wherever alfalfa can be successfully established it results almost immediately in doubling the value of the land. This indicates the importance of the extension of this forage crop. The production of alfalfa during the past decade has been greatly increased in many sections of the country where it had been thought impossible to produce it. It is found, however, where the necessary requirements are understood and provided for, that success, if possible, with this crop under a great diversity of conditions extended almost thruout the United States. Its production greatly facilitates the development of diversified farming so essential to the agricultural development of the country.

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FUR DEMAND ACTIVE

Manufacturers and exporters buying freely at Funsten Bros. & Co.'s fur sales in St. Louis.

Every reader of this paper who does any trapping will be interested in knowing that the fur market has decidedly recovered—and the daily sales that are held in Funsten Bros. & Co.'s great establishment in St. Louis are well attended and the bids are large, with the consequence that the prices Funsten Brothers are giving trappers and individual shippers are particularly satisfactory.

Funsten Bros. & Co. have built up in St. Louis the biggest fur-buying and selling establishment in the world. And the fact that they began small, but today are so great, is the best testimonial to the methods they have pursued in dealing with the trappers and shippers who send furs to them. Funsten Bros. & Co. have a market for every kind of fur, high grade, medium and low grade, and consequently are desirous of buying everything that is trapped in your neighborhood.

They have prepared for the guidance of trappers a particularly valuable Trapper's Guide. This year's edition is so large that they have authorized us to notify every reader to send for this Trapper's Guide and get it free. Even the postage is paid. Every reader is also invited to write for the latest price-list, which shows just what the market offers on every kind of fur. And Funsten Bros & Co. will also send free tags, shipping lists and complete instructions as to how to deal with them by mail and get the best prices for your furs. Almost every kind of fur is in big demand, and now, of course, is the height of the trapping season. When you write them (kindly) mention The North Dakota Farmer and your request will receive prompt attention. What you receive will prove very interesting reading. Address Funsten Bros. & Co., 298 Elm St., St. Louis, Mo.

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If you want to make your boy or girl mighty happy Christmas morning, give each a pair of good skates.

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Eastgate Brothers, of Larimore, N. D., announce that they have disposed of all their Oxford Down Lambs, but still have a few Angus Bulls left. Write them if interested. They are among the best breeders in the state.

Farmers who have occasion to use chemicals of any kind may rest assured that the firm of Fout & Porterfield, of Fargo, N. D., may be relied upon to furnish strictly pure goods. Chemical treatment is worse than useless if the chemicals are either impure or below standard strength.

You can not afford to raise weeds, even if there are now excellent methods of exterminating them. Jumbo is one of the most effective grain cleaners in the market. Besides it grades as well as cleans. Write to the Minneapolis Separator Company, 31 Erie St. S. E. Mpls. and receive their descriptive catalog.

Among our advertisers this month is the Crookston Tannery. This long-established firm may be relied upon for fair dealing and high class workmanship. Their established reputation and nearness to North Dakota patrons are certainly worth considering and we predict for them increased patronage this season from our readers. Write them for their price list.

Don't think because the ground is now covered with snow, that there will be no more skating this season. Don't think, because you have bought skates that were of inferior material, that Barney & Barry ever put out any goods not strictly genuine in make and material. Your nearest dealer probably has them. Be sure and ask for "Barney & Barry" skates. By the way, they also make just as good roller skates as they do ice skates.

Our Washington correspondent compares the cost of drawing a load of wheat nine miles to market to the expense of conveying the same amount from New York to Liverpool. Are you aware that roller bearings will greatly reduce the cost of hauling loads on our poor roads? Why not a Davenport Wagon until the township and county wake up to the need of better roads? Write the Davenport Wagon Company, Davenport, Ia., for their Catalog R, which will open your eyes to the advantages of this class of wagons.

It is a pleasure to have such a reliable firm as Wing & Son represented in our advertising columns. Once was the time when it would have been useless to offer the farmers of this state bargains in pianos. Accordians were the only instruments afforded by the pioneers. Today the piano is fast taking the place of the organ, only recently considered a great luxury. You can not afford to experiment with the cheaper grade pianos, for the superior grade will last a lifetime, and we believe Wing & Son are making a fair offer in their "Remedy."

It may not be just the weather for motorboating, yet it is the time of year to plan for the coming season of pleasure on our rivers and lakes. The amount of pleasure to be derived from that pastime depends upon the engine in the boat. The Lackawanna has been thoroughly tested in this state and we have no hesitancy in heartily recommending this engine, after trying several other makes. If you are interested in a motorboat, you will be surprised and delighted with the "Instruction-Treatise" sent by this firm. Address the Lackawanna Mfg. Co., 9 to 29 Caldwell St., Newburgh, N. Y.

North Dakota Farmer

AND SANITARY HOME.

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ELEMENTARY AGRICULTURE

For some time there has been a demand on the part of teachers and those interested in elementary agriculture that there should be published something which would be of direct benefit for use in schools or as aids to students who are interested in this subject. Several times the editor has been asked to start something of the kind, and I quote the following letter from Professor Abbey as touching on this point:

Mayville, North Dakota, Oct. 20 '08.

Dear Prof. Ladd:

For sometime I have felt that more should be done in the way of helping the teachers of our state prepare to teach Elementary Agriculture. The tendency along all lines is to make education practical. The dominant industry of this state is farming. A large part of the boys and girls in the public schools will be interested directly or indirectly in this line of work. To teach the subject of Agriculture in a helpful and practical way a teacher must have some special training. It is clearly impossible for all the teachers of the state to attend the Agricultural College or the Normal School. At present we have no school paper which runs work in this department. The paper that reaches the greatest number of people in the state is no doubt the North Dakota Farmer. It seems to me that you would be doing a great service to the teachers and pupils of the state if from month to month you would run an "Elementary Agriculture Department."

The need of such a department is shown by the many inquiries that I am receiving from month to month. Last year we sent out a Bulletin which treated of certain phases of the subject and since then we have not been able to supply the demand for this Bulletin. Something like 1200 were sent out but this number was far from sufficient. I hope that you will give this matter your careful attention and that you will find a way of meeting the demand for the kind of instruction that I have indicated.

Sincerely yours,
M. J. ABBEY.

As meeting the suggestions above indicated, arrangements have been made with Prof. Randlett of the Agricultural College to take charge of the work of this Department. Prof. Abbey has consented to prepare articles for this Department. I trust that it will prove of interest to our readers and that we shall have their support in this matter.

EXPERT TESTIMONY

It is a disgrace that in this country men are permitted to pose as experts to appear before the courts in important matters pretending to give expert knowledge on a subject, when, in reality, they are employed as advocates and are in no sense of the word giving expert testimony, unless it is to be called expert testimony because they are shrewd at dodging facts, or in selecting and distorting facts to establish the points which they desire to maintain. To illustrate what I have said in the preceding case, let me cite an instance where three leading experts so-called of America in years past who were willing to sell their services wherever there was a man or concern with \$1000 each as their retaining fee. These three men were employed as experts in an important litigation in U. S. Court and in their depositions, as taken, they certified to so much of chemical evidence as would prove helpful on their side of the case, withholding all that would in any way be difficult of explanation, or might tend to throw light upon the other side. Now, should such testimony be classed as honest expert testimony? As a matter of fact, were not these three men employed as advocates for the side they represented, and, therefore, should have been classed as special attorneys? The testimony taken upon the other side of the case in the deposition showed the fallacy of the claims that had been made by the three noted experts in simply pointing out wherein they were at fault and wherein they had failed to state the entire facts. In the rebuttal the three experts desired to correct and revise their former testimony, admitting that they had not gone into the full details in

the first case. What evidence is there that the testimony in the rebuttal is any more trustworthy than that in the original; and it would seem that the learned Judge so considered the matter, for he proceeded to brush aside the expert testimony of the three witnesses and the case was lost to the other side.

The only credit that is to be given to the testimony upon the other side of the case is the fact that in spite of the opposition of the attorneys, the witness was determined that the entire facts should go in, this preventing any possibility of refutation upon the other side. Testimony of this kind and of this kind only is expert testimony, and often the attorneys, or those who employ experts, are as much to blame as are the experts themselves. But that learned men should be willing to lower their standard and reputation, even by accepting large fees, should be enough to condemn such testimony in the eyes of the Court, as well as of the well-informed public.

The writer has had occasion to hear the testimony of several noted experts during the past few years, not only so called experts in chemical lines, but medical experts as well, and for one I must admit that I have become thoroughly disgusted with the present system of employing experts. Whenever I find an expert who is selling his services in the endorsement of questionable practices or to uphold the claims of some questionable process, I at once lose respect for the man and feel that he is false to his trust as a man, false to his calling, false to the rights of the American people, and that if his conscience has not become wholly calloused, he is false to his own feelings; and, yet, some of these men will pose and seem to be at their best when their very testimony should impeach them. How long will the American people stand for this kind of practice!

EGG YOLK CONDEMNED

By throwing into the sea 1,052 cases of so-called "egg yolk" the collector of customs in New York has decided the long-standing controversy between importers and the government. A great quantity of this material has been imported into the United States from China for a number of years. It is used in making custards, pies and other products of bakeries. Three years ago a large consignment was held up by the authorities under the pure food law on the claim that excessive quantities of borax was used in it as a preservative. Since then none has been allowed to land. The importers fought the department's decision, but the city health department has now condemned the egg yolk held in storage here, and it has been given to the fishes.—Eli Grocer.

FOOD STANDARD

There was held at Madison, Wisconsin, Sept. 29 and 30 a meeting of the Food Commissioners of the Northwestern State in order to secure as far as possible uniformity of action regarding labeling. At this meeting the following resolutions, of interest to all our readers, were unanimously adopted:

1. Resolved, That the sale of sausage and sausage meat conforming to the following standard will not be contested:

Sausage. Sausage meat is a comminuted meat from neat cattle or swine, or a mixture of such meats, either fresh, salted, pickled or smoked, with added salt and spices and with or without the addition of edible animal fats, blood and sugar, or subsequent smoking. It contains no larger amount of water than the meats from which it is prepared contain when in their fresh condition and if it bears a name descriptive of kind, composition or origin, it corresponds to such descriptive name. All animal tissues used as containers, such as casings, stomachs, etc., are clean and sound and impart to the contents no other substance than salt.

2. Resolved, That the sale of compounds composed of sausage, cereals and added water will not be contested if labeled as follows:

Compound

-% Sausage
-% Cereals
-% Added water

and if the names of all the ingredients be in the same sized type and the name of no one of them be given greater prominence than another.

3. Whereas, The addition of ice or water to shucked oysters has the effect of lowering and depreciating and injuriously affecting their strength, quality and purity, Therefore be it

Resolved, That such addition constitutes an adulteration and the sale of oysters so adulterated will be contested.

4. Resolved, That the sale of ice cream conforming to the following standards will not be contested:

1. Ice cream is a frozen product made from cream and sugar, with or without a natural flavoring, and contains not less than fourteen (14) per cent of milk fat.

2. Fruit ice cream is a frozen product made from cream, sugar, and sound, clean, mature fruits, and contains not less than twelve (12) per cent of milk fat.

3. Nut ice cream is a frozen product made from cream, sugar, and sound, nonrancid nuts, and contains not less than twelve (12) per cent of milk fat.

5. Resolved, That the sale of ice cream, defined as above, when mixed with gelatin not to exceed three ounces of gelatin to ten gallons of ice cream, or

with tragacanth or other vegetable gum, or with eggs, will not be contested if the same is labeled and sold as "gelatin ice cream," or "gum ice cream," or "egg ice cream" as the case may be and provided that the butter fat content shall not fall below the standards as stated above.

6. Resolved, That the sale of soft drinks and other food products containing soap bark or any of its preparations or cocaine will be contested.

7. Resolved, That the addition of caffeine to soft drinks is unnecessary, and reaching as it does largely the child population of our states, is fraught with extreme danger and constitutes a menace to health.

8. Resolved, That it is the sense of this convention, that the enactment by the several states of measures to secure full and complete sanitary control of food producing, manufacturing, and distributing establishments and agencies is both desirable and necessary.

9. Whereas, It has come to our notice that in some cases rotten, mouldy, decomposed and unwholesome tomatoes are being used in the manufacture of tomato catsups;

Resolved, That the food officials of the country investigate the manufacture of this food in their respective states and adopt every possible measure to prevent the use of such material.

10. Resolved, That the practice of treating fish, ham, bacon, sausage and other meat products with so-called "liquid smoke" and similar preparations is fraudulent and a menace to health and the sale of products so treated will be contested.

BLEACHING OF FLOUR

A great deal has been said of late with regard to the bleaching of flour as commercially practiced at the present time. It is claimed that fully eighty per cent of all the mills in the country are now using bleachers of some kind. The bleachers used may be divided into two classes, the electrical bleacher and the chemical bleacher.

In the electrical bleacher nitrogen peroxide, a gas which forms nitrus and nitric acid as it comes in contact with moisture, is produced and injected into the flour. This gas, of itself, is a deadly poison. It has been proven to be a powerful antiseptic and, therefore, must of necessity, like all other antiseptics, retard digestion.

In the case of the chemical bleacher, the nitrogen peroxide or gas is formed by the decomposition of nitric acid and this product is then introduced into the flour. In both cases the results are identical.

Experiments have been made to conclusively show that digestion is very

greatly retarded by the presence of this agent. It has, further, been shown that from one-third to one-half of the material remains in the bread.

The men who are fighting to continue this nefarious practice are, in reality, the promoters of the bleaching apparatus. They have made a large fortune and they desire to continue their practice and secure their wealth even at the expense of the health of their fellow-beings. These promoters of bleaching, working thru a few millers and with plenty of money at their command, have been able to employ a large number of so-called experts, who are willing to testify as to the harmless nature of the bleaching agent employed; in fact, to its entire absence in the bread as consumed by man. Most of these so-called experts have made no study of the subject and have very little practical information. More than that, they are employed like most experts to give information upon one side only, and to look for facts which will bear out the point they desire to establish. That men who aspire to prominence and who have gained for themselves some reputation, should stoop to become a party to promoting the interests of those who are sapping the life from the American people, is almost beyond comprehension. Some of the literature that has been published by men of this type, when carefully scanned and analyzed, show the calibre of the men who have conducted the investigations; or, perhaps it would be better to say, that it shows their willingness to find results in harmony with the requirements of those whose interests they serve.

I believe I am correct in saying that every food commissioner and every food chemist connected with the Food Commissions in the United States are opposed to the chemical bleaching of flour, and this opposition was expressed in a resolution as passed at the Annual Convention of the Association of State and National Food and Dairy Department, which went on record as follows:

"Resolved, That this Association is unalterably opposed to the bleaching of

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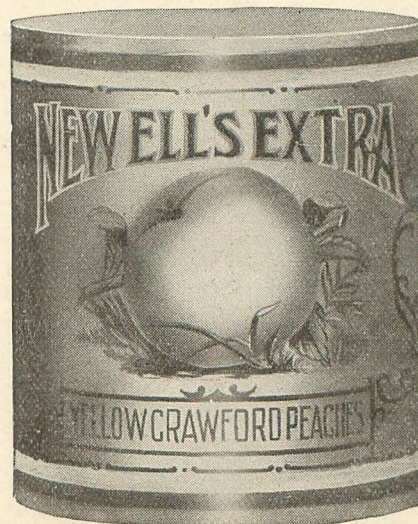
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Geo. R. Newell & Co.,

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flour by oxides of nitrogen or other chemicals."

And further:

"Resolved, That this Association is convinced that all chemical preservatives are harmful in foods, and that all kinds of food products are and may be prepared and distributed without them, and pledges its best efforts to use all moral and legal means at its disposal to exclude chemical preservatives from food products, and, to this end, we ask the cordial support of all national, state and municipal authorities charged with the enforcement of food and drug laws."

It is a noticeable fact that the men employed as experts upon the other side, while some of them have government positions, not one of them has had to do with investigations relating to fraud and deception and the effect of preservatives upon the health of man; and some of those who have become advocates to aid the millers are known to have been opposed to the bleaching of flour until they affiliated themselves with the manufacturing interests.

WHEAT TESTS

Experiments with the testing of wheat, its milling, flour and bread producing qualities have been made by the North Dakota Government Agricultural Experiment Station and the results presented in bulletin No. 82. A large number of samples of wheat were tested as grown in all parts of the state and mainly of the three varieties, fife, bluestem and the durums.

It is estimated that the total crop for 1906 was 72,504,821 bushels, of which, approximately, 22,000,000 bushels are estimated as durum. The yield for durum is considerably greater than that for fife and bluestem. The price paid for durum in 1907 ranged from twenty to twenty-seven cents per bushel less than that for the other wheats, in the local markets. Kubanka and Arnautka were most generally grown in the state, altho a few other varieties are given in the results of the bulletin.

Grades of Flour

Three grades of flour were made in the experimental mill averaging, approximately, as follows:

Patent.....70 percent of flour
First Clear 23 percent of flour
Second clear 7 percent of flour

Flour is judged largely in the home especially, by the color, but, under present existing conditions, it is shown that the whitest flours are not necessarily the best, since the whiteness is not natural to the flour but has been produced by artificial means.

For all the samples tested at the mill the average weights per bushel were as follows:

Fife & Bluestem Durum
Wheat, per bu. cleaned 59.38lbs 61.85lbs
% of flour produce 70.52% 71.62%

From which it will be observed that the durum produced a slightly larger proportion of straight flour than that produced by fife and bluestem.

As showing the proportion of the three grades of flour we may summarize as follows:

	% Fife and Bluestem	Durum %
Patent.....	47.47	41.51
First Clear.....	16.92	19.01
Second Clear.....	5.66	10.16
Bran.....	12.30	8.29
Shorts.....	13.93	18.02

There is quite a difference in the weight of one hundred kernels for the two varieties of wheat.

Wgt. of 100 kernels, gr.

Fife and Bluestem.....2.3554
Durum.....3.5167

The amount of wheat required to produce a barrel of flour was:

Fife and Bluestem4 bu. 42 lbs.
Durum4 bu. 32 lbs.

It, therefore, takes less durum to produce a barrel of flour than of fife and bluestem, and the proportion of bran is

less in the durum than in the fife and bluestem, but the proportion of shorts is relatively higher.

The amount of gluten for the several grades, together with the average for all the commercial flours examined, was as follows:

Expressed in grams for twenty-five grams of flour:

	Wet Gluten grams	Baked Gluten grams	Gluten Exp. inches
Commercial flours..	9.81	4.38	3.37
Fife & Blue stem (patent).....	11.3	6.30	3.58
First Clear.....	12.1	7.30	2.15
Durum Pat' Flour..	10.6	6.09	2.51
First Clear.....	10.8	6.54	2.09

Commercial Flours

Sixty-nine samples of commercial flours were taken up over the state and of this number twenty-two samples were unbleached, the balance representing the bleached flours. The extent of bleaching varied widely, from almost no nitrite re-acting material to as much as three parts per million, altho this amount is considerably less than has been reported in previous investigations.

Livestock Department

PROF. W. B. RICHARDS, Editor

SOME SUGGESTIONS ANALYZED

Various Notions About the Jersey Cow Picked to Pieces

The press bureau of the National Dairy Show Association launches the following "Dairy Suggestions" with the following for reply:

"Has the Jersey cow, the cow of fiction and the experimental station, the cow of the gentleman farmer and the novice, the cow of the wealthy dairyman, and the farmer who wants to get wealthy off dairy products, been forced into the background by the other breeds that have come much into public attention of late?

"Financial Countess 155100, recently reported on for one year from June 8, 1907, gave 13,248 lbs. of milk, which yielded a little more than 795 lbs. of butter fat, or 935½ lbs. of butter. This was within 31 lbs. of the cow's own live weight.

"Do the city consumers of butter appreciate the Jersey product? Is all creamery butter the same to the city consumer, and is there any advantage in the dairyman confining himself to one strain of milch cows?"

In the first place, it's a "faulty affidavit," drawn up by someone evidently unfamiliar with the dairy business or the breeding of dairy cattle. The Jersey cow is put on trial for a fault of which she is not guilty. True, we confess that Financial Countess, a Jersey cow, did produce over 13,000 lbs. milk containing 795 lbs. 4. 6 oz. of butter fat, indicating 935 lbs. 10 oz. of butter. She did even more than this. She actually produced by churn, 943 lbs. 13 oz. of butter from that same milk—a "confirmed" test that has never been approached by any other cow of any breed.

But to the head and tail of this proposition. Let's take it in small bites and go in easy stages:

"The cow of fiction and the experiment station." Doubtless the Jersey cow's performance does astonish the uninformed, but it's the truth—and that's said to be "stranger than fiction." What has the experiment station to do with it, anyway? She came to the stations just as she did to private individuals—thru the strength of her individuality. She was an established institution before the experiment stations awakened to the fact that she must be reckoned with as the dominating factor in economical dairy production. She

forced herself on the stations and they could not dodge. The Jersey cow had made more butter than cows of other breeds, and made it cheaper, before the experimenters began experimenting with her. She owes to the stations no prestige that had not been attained in other directions, thru her superior merit and the enterprise of her owners and the American Jersey Cattle Club. It is true that if the experiment stations had been provided by the State with sufficient funds to buy good Jersey cows, the breed's superiority might have been earlier demonstrated thru this channel.

"The cow of the gentleman farmer and the novice." This ancient phrase was coined in spite and intended to discredit the Jersey. It still rolls from the tongues and flows from the pens of those who either repeat in innocence what they have read, or use it maliciously. It has been worn threadbare. But is it so bad, after all? If a cow so useful as the Jersey can still be so beautiful as to fill the eye of a "gentleman farmer," are not her breeders just that much better off in having a wider market for the stock they raise? And if there is any cow for a "novice," surely it must be the cow that has beaten the world in public demonstration as "the most economical producer of milk for all purposes of dairying." A dairyman of experience might make use of a less profitable cow than the Jersey, but for goodness' sake let the novice and gentleman farmer have the best and the prettiest.

"The Jersey cow, the cow of the farmer who wants to get wealthy off dairy products." Here the question shows signs of human intelligence. It could not have been better nor more truly said. That is just what the farmer can do who applies the energy and brains essential for success in any business. And he can do it more quickly with Jerseys than with cows of another breed.

After all this, our inquirer wants to know if the Jersey cow has been "forced into the background." What other cow, please, shares the limelight? Are there any but supernumeraries? It is doubtful if all other dairy breeds combined have so many adherents or are attracting so much favorable attention as the Jersey breed is right now. At no time in her history has she been so popular. For the past nine years her growth in public favor has been something tremendous. From the first she was the recognized ideal dairy machine; her victory at St. Louis over rival breeds won many who were doubtful of her superior merit; the influence of recent importations has established her among the class who care for beauty along with economy in production; and the tendency of the pure food laws has been to educate the public regarding high class dairying—and of this the Jersey cow

is the symbol.

Yes, the city consumers of butter "do appreciate the Jersey's product"—when they can get it. Jersey butter tops the market when properly made and intelligently sold. Wherever "record prices" prevail for butter it is invariably for the product of a private Jersey dairy. "All creamery butter may be the same" to the city consumer, but it is not Jersey butter—altho for advertising purposes it is frequently so labeled, the maker easing his conscience with the fact that some Jersey milk was brought to his churn. It is really a mixed-breed butter.

"The advantage in the dairyman confining himself to one strain of milch cows," where the product goes to a creamery, is this: If he confine himself to Jerseys he can deliver more butter fat per cow, produce it cheaper, save in feed bills and get a bigger check at the creamery. All of which means more money, more comforts for the family, and consequent increased happiness.—The Jersey Bulletin.

MINNESOTA LIVESTOCK ASSOCIATION

The North Dakota Farmer,
Lisbon, N. D.
Gentlemen:

The Annual Meeting of the Minnesota Livestock Breeders Association will be held in Minneapolis on January 12th and 13th, in conjunction with the annual meeting of the Field Crop Breeders' Association and the State Agricultural Society. The Livestock Breeders will have charge of the program on Tuesday afternoon and Wednesday forenoon. A good program is insured, including some of the highest authorities on livestock matters in the Northwest, and a portion of the time will be spent in discussions of live stock subjects by practical men of the state. Tuesday afternoon, January 12th, and Wednesday morning, the 13th, will be the days of greater interest to the live stockmen. All the meetings will be held in the Court House, Minneapolis.

Yours truly,

Andrew Boss,

Secretary M. L. B. A. of Minnesota.

ST. PAUL UNION STOCKYARDS CO.

Report for November, 1908

Summary 11 Months

RECEIPTS

	Cattle	Calves	Hogs	Sheep	Horses	Tot. Cars
C. R. I. & P.	257	12	2105	.....	3	35
C. G. W.	632	47	7832	1125	4	126
C. M. & St. P.	5930	554	29895	8551	13	644
M. & St. L.	1339	189	13979	935	.....	231
C. St. P. M. & O	2953	325	29329	6220	49	511
C. B. & Q.	220	19	2498	1169	.....	46
Wis. Cent.	89	19	1784	18	.....	22
M. St. L. & S. S. M	7629	940	13908	5210	1	472
Gt. Nor.	18934	1850	29667	14793	167	1105
Nor. Pac.	13262	947	8640	17712	84	682
S. Y. T. Ry Co	19	.....	.....	.....	.....	1
Driven in	860	50	744	131	.....	.....
Total	52124	4952	140381	55864	321	3875
Total L. Yr	57976	3328	68994	64446	301	3570

SHIPMENTS

	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
C. R. I. & P.	2584	8	.....	1940	25	94
C. G. W.	2946	147	2398	4638	25	142
C. M. & St. P.	5940	177	18302	4373	14	415
M. & St. L.	902	.....	.....	1816	.....	47
C. St. P. M. & O	6411	305	4807	8809	62	330
C. B. & Q.	14140	280	6574	8589	164	416
Wis. Cent.	220	1	.....	3732	.....	24
M. St. P. & S. S. M	814	20	.....	.....	8	32
Gt. Nor.	231	103	.....	3112	1	24
Nor. Pac.	376	97	80	3725	22	34
S. Y. Ter.	341	.....	.....	.....	.....	11
Driven out	1286	363	105	271	31	.....
Total	36191	1502	32266	41005	352	1767
Total L. Yr	49485	1390	16814	50214	328	2449

RECEIPTS

	This Year	Last Year
Cattle.....	380179	442176
Calves.....	59778	59058
Hogs.....	1006192	751582
Sheep.....	326096	542259
Horses.....	6855	14436
Cars.....	28090	30706

SHIPMENTS

	This Year	Last Year
Cattle.....	276740	353126
Calves.....	12646	14964
Hogs.....	225062	38392
Sheep.....	219296	476114
Horses.....	6461	13932
Cars.....	12517	16274

A HOG'S LAMENT

By R. E. Busch

Hog's my name
But what a shame
The treatment I get from my boss!
What wonder I oft am a loss!

I'd like more room
But I presume
He'd have me avoid exercise.
Or he wouldn't confine me to sties.

Hot days I'm dry,
But tell me why
He don't give me plenty to drink.
Surely water won't hurt me, I think.

I have no shade
Except that made
By a wire fence four feet high
Just enough for a good-sized fly.

After rain it's so wet
That I cannot get
A decent dry place to sleep
Tho of straw he has quite a heap.

"Hog's a hog," he said,
So in mud I am fed,
When 'twould be such a treat
Had I clean food to eat.

On chilly cold nights
When Jack Frost bites
How I long for a dry warm nest
And sigh for a good night's rest!

I hope that my boss
Will see to this loss
And treat me humanely some day;
Well tended, I surely will pay.

VALUE OF DIFFERENT KINDS OF GREEN FORAGE FOR HOGS

By H. J. Waters, Director Missouri Experiment Station

Perhaps the largest single waste occurring on the Missouri farm at the present time is that which comes from the too exclusive use of corn in growing and fattening hogs. The cheapest and most easily applied remedy is a more general use of the proper forage plants in summer and the use of some home grown protein in winter. It is not of course to be denied that the hog is primarily a grain consuming animal, at the same time forage plays an important role in economical hog production and deserves far more attention than it has yet received. To secure accurate information on this point, this Station undertook some time ago to compare the value of various forage plants when combined

with corn for the growing and fattening of hogs.

Details of the Experiment

Six lots were fed. Each lot contained six high grade Poland China pigs, weighing about 50 pounds each. The rations were as follows:

Lot I. Corn meal three parts; ship stuff two parts.

Average daily gain per head, .67 lbs.
Grain required per pound of gain, 5.18 lbs.

Cost per 100 pounds of gain, with corn at 40 cents per bushel, ship stuff, \$18.00 per ton, \$4.07.

Lot II. Corn meal and green rape. (First 40 days of experiment only).

Average gain per head, .58 lbs.
Grain required per pound of gain, 4.41 lbs.

Cost per 100 lbs. of gain with corn at 40 cents per bushel and Green Rape at \$3.00 per ton, \$3.34.

Lot III. Corn meal; Fresh Alfalfa.

Average daily gain per head, .83 lbs.
Grain required per pound of gain, 4.01 lbs.

Cost per 100 pounds of gain, with corn at 40c. per bushel, Fresh Alfalfa, \$3.00 per ton, \$3.00.

Lot IV. Corn Meal; Fresh Clover.

Average daily gain per head, .77 lbs.
Grain required per pound of gain, 4.35 lbs.

Cost per 100 pounds of gain, with corn at 40c. per bushel, and Fresh Clover at \$3.00 per ton, \$3.25.

Lot V. Corn Meal; Fresh Bluegrass.

Average daily gain per head, .63 lbs.
Grain required per pound of gain, 5.31 lbs.

Cost per 100 pounds of gain, with corn at 40c per bushel, and Fresh Bluegrass at \$3.00 per ton, \$3.96.

Lot VI. Corn Meal; Skim Milk.

Average daily gain per head, 1.61 lbs.
Grain required per pound of gain, 2.43.

Cost per 100 pounds of gain, with corn at 40c. per bushel, and skim milk at 15c. per 100 lbs., \$2.83.

The feeding experiment covered a period of 102 days, beginning July 25, 1902, and continuing until November 4, 1902.

Each lot was confined in a separate pen, on a granitoid floor, with a shed for protection against the sun and heat.

The green forage was fed in a separate trough twice daily, immediately after being cut, the same being carefully weighed, and given in such quantities as the hogs would eat without waste.

The corn meal was of medium fineness, was mixed with water to the consistency of a thick dough, and was fed twice daily in such quantities as would be eaten without waste. In the case of Lot I, having corn meal and skim milk, the meal was wet with the milk instead

of with water. Otherwise they were all fed in the same manner.

The rape was large and coarse, and only the fresh green leaves were fed.

The alfalfa, until August 12th, about the middle of the experiment, was rather too mature and coarse to be relished by the hogs, and was fed just as it came from the field, stems, leaves, etc. After the 12th of August the alfalfa was of fairly satisfactory quality.

The red clover and bluegrass were both young and tender until late in the season, about the last thirty days, when they were both rather too mature and coarse for the best results. Especial care was exercised to secure bluegrass free from white clover or other legume.

The green material was offered twice daily, night and morning, as was the grain.

Salt, mixed with wood ashes and with a small amount of finely ground bone meal, was kept in a separate trough before each lot constantly.

The hogs were watered twice daily with deep well water, and the pens were kept clean and sanitary.

It was not expected that in ordinary farm practice the green material would be cut and fed to the hogs in this manner. At the time the experiment was undertaken, however, it was not feasible to fence off areas of each of these forage crops and graze them; besides, to know what amount of each of these green forage crops was consumed by hogs when full fed on corn was deemed to be information of importance both from a practical and a scientific standpoint. Outside of the extra expense required for cutting and hauling this material to the hogs, it was not considered that they would do so well on this material as if allowed to graze, for when grazing they would be able to select their material and would eat a larger quantity of forage than it was possible to get them to consume in a pen when it was cut and fed to them in the manner described. It is safe, therefore, to assume that our experiments show the minimum advantage of these forage crops and that in actual practice a larger benefit would accrue from the use of these materials than our experiments show.

It will be noted that by using clover instead of bluegrass a difference of nearly 75c per hundred in the cost of gain was effected.

When alfalfa was used instead of bluegrass, the saving was nearly \$1.00 per hundred.

When skim milk was used instead of the forage, the cheapest and most rapid gains were made.

When it is noted how much cheaper the gains were made on corn and clover than those made on corn and ship stuff, for example, the folly of feeding such a ration in the summer time, when a green

forage might just as well be available, is apparent.

When we realize, moreover, that clover will give a larger yield of forage than bluegrass, and when we consider its superior feeding value, it is perfectly obvious that a material increase is made in the pounds of pork per acre of our land or per bushel of corn fed, by providing the hogs with clover pastures instead of requiring them to run on bluegrass, or even not so good as bluegrass, a timothy pasture or even worse than this, by confining them in a dry lot.

It should not be understood that bluegrass pasture during the time white clover has possession of the ground is not highly acceptable as a hog pasture. At this particular season of the year an ordinary bluegrass pasture, especially in those seasons when white clover does well, can scarcely be excelled. But before the white clover comes on and after

larger amount of pasture than will red clover, and that it will come on earlier and remain green later than clover, and will, if kept clipped, remain green throughout the summer and therefore afford a green pasture of succulent material which the hogs will relish most highly.

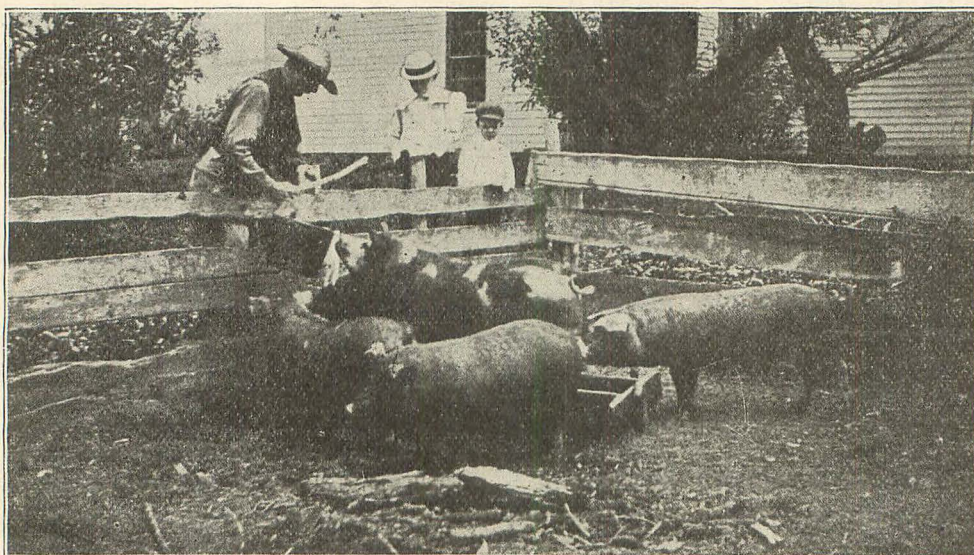
It is believed to be possible to grow enough alfalfa for hog pasture at least on practically every farm in Missouri. Until, however, alfalfa, is an assured success on every farm, the farmer ought to arrange for a clover pasture for his hogs every year without fail.

A Succession of Pastures for Hogs

It is not safe or even desirable to rely upon a single crop, excepting alfalfa where it is an assured success, to furnish pasture for our hogs throughout the entire season. It is better to arrange for a succession of pastures from the beginning of the season until the hogs are ready for market, making the feed rich-

The inventors had, before making their discovery public, made exhaustive tests in Iowa during several outbreaks of the cholera and the result was such as to warrant the placing of the results of their labor at the disposal of the swine raisers of the country.

Dr. Van Es returned from Iowa thoroughly convinced of the practical value of the method. Consequently on his return he immediately took steps for the manufacture of the serum necessary for the immunization. This was timely, for hardly had he begun when there was an outbreak of the cholera in the state among the herds that had been on exhibition at the various fairs, in which the college herd of about seventy-five were subject to the same exposure. The result was that the doctor was immediately called upon for large amounts of the "serum," larger in fact than he was able



"The Hogs were Watered Twice a Day and the Pens were Kept Clean and Sanitary."

it has passed away, the ordinary bluegrass does not begin to compare in value with a pasture of red clover or alfalfa.

Red Clover and Alfalfa Compared

It will be noted that alfalfa showed a superiority over red clover as a forage for hogs in both periods of the trial. The cost per 100 lbs. of gain was as follows:

First Period. Corn and Alfalfa, \$2.59
Corn and red clover, \$2.89. Difference, 30c per hundred.

Whole Period. Corn and Alfalfa, \$3.00 per hundred. Corn and red clover, \$3.25. Saving from use of alfalfa, 25c per hundred.

This means a difference on the basis of a 250-lb. hog of 62 1-2c. or about \$37 on each carload of hogs, or more than enough to pay the freight, even if the yield of the two crops is to be counted the same.

Of more importance than the superiority of the feeding value itself is the fact that the alfalfa will yield a much

er and more concentrated toward the close of the season and as we approach the finishing or fattening period. For this purpose the following crops are recommended: Red clover or alfalfa, Cowpeas, Soy Beans.

HOGS MADE IMMUNE FROM CHOLERA ATTACKS

Dr. Van Es Makes Report on Investigations of This Subject

During the month of July of last summer at the invitation of the secretary of agriculture, Dr. Van Es attended a meeting at which the men from many states participated in which this discovery or invention of Drs. Dorset, McBride and Niles of the bureau of animal industry was made public and opportunities were afforded for an exhaustive study of the method and technique involved.

to supply. It however, afforded ample opportunity for the retesting of the efficacy of the method. The returns and reports from this work are as yet very incomplete but the results of the work on the college herd is given in full with the methods employed, in a report that has been submitted by Dr. Van Es as bacteriologist and consulting veterinarian to the live stock sanitary board for approval. after which it will be published in the annual report of that same board.

It is this report that the doctor has kindly loaned to The Spectrum and we will endeavor to briefly outline the methods employed as well as the report upon the work with the college herd.

The Process Used

"Essentially the method consists in rendering the animals passively immune by the injection of an antitoxic serum," said Dr. Van Es, "and while

the animal is thus protected, to make this immunity active by exposing the animal to a natural infection or by injecting it with a small quantity of virulent blood.

"The first step consisted of the immunization of the hogs that are later to furnish the protective blood serum to be used by the breeders in immunizing their herds. This is done by the simultaneous injection of a quantity of protective serum previously obtained and some virulent blood. This renders these hogs immune.

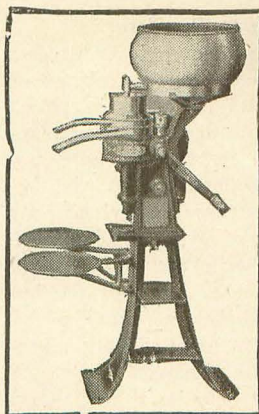
"At the same time a certain number of the animals were injected with the virulent blood in order to produce cholera sick animals the blood of which is necessary for what is known as the hyper-immunization of immune animals.

"By hyper-immunization is meant the injection of as much as ten c. c. of the virulent blood for every pound of the body weight. This may be done by one operation or by a slower method in which the amount injected beneath the skin of the animal is repeated, beginning with small doses.

"After five or ten days the animals treated in this manner become hyper-immune and their blood then possesses the power of conferring passive immunity. This blood is drawn from the animal by cutting off of a piece of the animal's tail under sterile conditions and as the blood spurts out it is caught in pans. About four or five hundred c. c. can be drawn from one animal at periods of one week. This blood is allowed to coagulate, is filtered and preserved by the use of an antiseptic. It is then bottled and stowed away in an ice chest until wanted.

The Work of Immunizing

"When the hogs are to be immunized against cholera this hyper-immune blood serum is injected under the skin on the inner thigh in doses of 20 c. c. for hogs weighing 50 to 130 pounds, in doses of 40 c. c. for hogs weighing 150 to 300 pounds. When these hogs have been exposed to natural infection one injection is sufficient. If, however, there is no expos-



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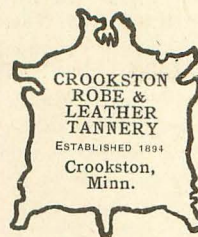
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ure or where exposure is questionable it is necessary to inject 2 c. c. of the blood containing the virulent bacillus at the same time in order to obtain active immunity. In our experience it has proven to have been of great importance, especially when working with herds in which the disease has just made its appearance.

Tests on College Herds

"The first outbreak in the college herd last summer was upon August 24. The case was looked upon with suspicion from the first as the disease was then abroad in the neighborhood and about ten days later the sickness and death of two animals confirmed the presence of the disease infection. As soon as possible serum was obtained and all of the animals in the hog lots were injected with the exception of five and a litter of pigs only a few weeks old.

"The injection was followed in a few cases by some local swelling and stiffness, but with two exceptions these were transitory in character. One of these developed gangrene from secondary accidental infection and the other was a pig of general unthriftiness.

"In immunizing this herd only the serum was used, it being taken for granted that all of the animals had been exposed to the disease from natural infection.

"Much disappointment resulted when two of the pigs that had been injected took sick, and died and the autopsy revealed typical lesions of cholera. A thoro study of the problem revealed that it was very probable that all of the animals had been exposed to the disease and so to insure from further loss all of the animals were at once injected with 2 c. c. of the virulent blood to produce active immunity.

"After this one more of the animals took sick and was destroyed, revealing a case of cholera. Two more of the hogs sickened later but the cases were apparently light and they soon recovered.

"Of the check pigs none are left. All were examined with the exception of one after death and showed the typical cholera lesions.

"To sum up the results we find after the introduction of infection seventy-four animals were injected. Of these animals one died from accidental infection and three from cholera. This makes a total of three deaths from cholera in the seventy-four infected animals and it is our opinion that even this loss could have been prevented by using the simultaneous virus serum injection in the first place instead of depending upon natural exposure for infection.

Advice to Breeders

"From our experience it would seem advisable to practice the simultaneous virus injection in all herds in which infection has not already been introduced and also in those where immunization is undertaken at the beginning of the outbreak in which only a limited number of cases have occurred.

"Our results with the college herd clearly bear out the claims of the bureau of animal industry, that in this method we have a very efficient method of checking the disease.

"The question may be asked: How can the serum be used to protect our swine growers against cholera?

"In answering this question we consider it unnecessary that all of the hogs be immunized promiscuously, when no infection is in the country. The time may come when this will be possible, but our present facilities for the manufacture of the serum are inadequate for the demand to be expected in such a case.

"Breeders who take their stock to

swine shows, fairs, sales, etc., however, should have their swine immunized.

"When outbreaks of cholera occur, the live stock sanitary board should at once be advised and this board should then immediately begin to immunize the hogs around the primary focus of infection. The immunization in such cases should be done by the simultaneous method and while this is done all hogs showing evidence of cholera, should be immediately burned or destroyed."

While the method as worked out by the bureau is very practicable there are some phases which should be studied with a view to reducing the cost of the serum and eliminating the possible danger from secondary infection from the use of the virus. Experiments in this line are now actually under way at the local laboratories and will be tried out during the spring months when opportunity presents itself.—Spectrum.

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Poultry Department

It does not pay to put two kinds of eggs in a machine at a time. Hatch the ducks' eggs at one time and the hens' eggs at another.

Absolute cleanliness is a great help in keeping chickens alive; they will not thrive in coops and brooders that are not kept clean. Filth is a breeder of lice, mites and disease.

Dampness I never allow in my poultry houses. Fresh air is a tonic. Fowls do better in houses that are well ventilated.

Alfalfa makes an excellent feed for poultry in winter. Chopped with hot water poured over it, the fowls will eat it readily.

Start with the breed that you think you want, and then stick to it. The stock breeder who shifts every few years to a new breed never gets anywhere in his operations.

The hen that does all her laying during the summer had best be disposed of along with her chicks. Her small profit cuts down the average and discourages the fancier. It costs just as much to keep her as the others, and the room she and her offspring occupy should be given to the winter layers and their chicks.

Charcoal is highly recommended for hens as a purifier and for toning up the system. One of the best ways to administer it is in the form of burnt corn. It has no equal as a health promoter. Put the corn in a pan in the oven. Keep it there until the kernels are a crisp black. The hens will eat every kernel of it.

One of the greatest mistakes poultry raisers make is to allow sick and ailing birds to run with the rest of the flock. In this way the sick birds drink and eat from the same pans that the others use, and the disease spreads more rapidly. Disease is easily transmitted thru the drinking pan.

A great many poultry raisers want to know how many times per day to feed the fowls. Some find that twice a day is sufficient, some feed three times; but I think it all depends upon the feeder. For those who are inexperienced, it is safest to feed three times per day.

When feeding the hens I scatter the grain wide in the litter. This prevents the greedy hens from securing more than

their share, but compels all to hunt for it, thereby taking exercise and remaining in better condition for laying.

It is useless to expect fowls to lay all summer and winter. They have a time in which to rest and throw off their old feathers. The natural molting time is in the summer. The sooner they are thru the moult the sooner they will commence to lay.

The feeding of fowls during the winter is altogether a different proposition from feeding in the summer when the fowls can pick up a variety of food. During the past week I have been getting ready for severe weather. I have carefully banked the house. This winter I have a tent for the fowls to scratch in. Have on hand a lot of cabbage leaves for green food. I also have on hand different kinds of grain. It is an easy matter to keep green cut bone since cold weather has set in.

Don't overlook the fact that exercise plays an important part in profitable poultry culture during the winter months. A daily airing will do much toward preventing a damp poultry house. Dampness breeds disease and a diseased flock plays havoc with a poultryman's flock.

A good plan to supply fresh air is to open the window and have a muslin covered frame to fit into the space. Fresh air will easily go thru the muslin, and yet there will be no draft. Fresh air is just as essential as food and water.

Keep the male birds separated from the females during the winter months, unless the eggs are wanted for incubation, besides the male birds will be in better condition in the spring.

I find that poultry always pays a profit to those who understand their management and give it their full attention. Because one person has made a success with poultry, it does not follow that every one can do this in his back yard with just ordinary attention.

Eggs can not be kept in a warm room longer than ten days without interfering with the vitality of the germ. To prevent settling the eggs should be turned daily. Eggs intended for hatching should be kept in a cool place.

Before embarking in the poultry business it is necessary to realize that it re-

quires a knowledge of the subject, some capital, energy and intelligence. Keeping fowls in large numbers with a view to making a living must be dealt with on a commercial line. There is a good deal of hard work to it and a lot to learn. Because half a dozen hens in a back yard will return a certain profit, it does not follow that six hundred hens can be relied on for 100 times the profit.

Do not open a machine to help a chick out of the shell. The chances are that it will finally get out without help.

I always cool the eggs during the incubation period as I believe that it is a benefit to the hatch and to the chicks individually.

To run an incubator successfully requires experience, and this comes with work. I learn something new every year about incubation. It is a fascinating study, and requires careful consideration, as does everything else in this world.

Who has not noticed the shelling out of eggs at butchering time, when hens had many good rations of meat scraps, cracklings, liver and bloody parts? Who has not noticed the increase in the egg basket when green bone has been used instead of an all grain ration? Hens can be kept in good condition with plenty of almost any kind of feed, but some kinds are better for the production of eggs than others. To get the best results one must know what to feed, how to feed it and the right quantity to feed to obtain the best results in the egg basket.



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FORT DES MOINES, IOWA

Home Affairs

Katherine C. Neilson, Editor, Mayville, N. D.

FOR DECEMBER, 1908

A Progressive Dinner

Nearly every community of a moderate population has now a Woman's Club. They are pleasant, instructive and helpful, in many ways. Let me describe ours in this country-city which was organized in 1894, a branch of the Fargo Club at that period.

After having studied the history, literature, music and art of these several nations it awoke the interests of the club to supply some entertainment to the people by giving a Progressive Dinner and represent the different nations. As this was to be a five course dinner, it was arranged to be given at five residences of club members, the other members to assist at each course.

Holland gave the first course which was Noodle Soup served in blue and white bowls and plates, with pickles and wafers. Tulips were the native flower decorating mantels, etc. Native airs pervaded the rooms from phonographs.

Waiters wore pretty white Dutch bonnets, wooden shoes and garb.

Twenty minutes was the limit of each course. As each guest departed a small Dutch flag was fastened to her dress and his lapel. and a new relay of guests entered while the former members left for the second course in Japan to refresh themselves on a more substantial substance—Chop Suey, rice and tea. These viands were served by very Japanese looking ladies in high-colored Komonos and many fantastic ornaments. Guests were seated on the floor cross-legged and large cushions for the portly people.

The decorations were truly a study in art. Festoons of brilliant lanterns, umbrellas, fans and flowered trees changed the rooms into native bowers, and made one feel that he was on a real foreign trip.

From gay Japan we sought the third course in England to dine on roast-beef, Yorkshire pudding, browned potatoes and buns. We were ushered into the spacious hall by a very dignified butler, his portly front covered by the "Union Jack," his demeanor truly genuine.

The national colors were repeated in festoons of bunting, and flags of England. Red and white roses and maple leaves decorated the tables. "God Save the King" and other airs resounded thru halls and parlors while the butler sent us on with the British flag for the fourth course in "Our Own America."

As each group entered the gate up the walk "The Spirit of Young America" burst forth with fire crackers and flash-lights of red, white and blue, on the lawn, "Uncle Sam" made us welcome at the entrance.

The tallest Uncle you ever saw. Even more—he was born in this town and state. Flags unfolded, portraits on walls of our distinguished National leaders. Old National Airs—"Yankee Doodle, Star Spangled Banner and Solos, rung out—while tri-colored ice

flour and let them dry for 30 minutes tossing occasionally. When needed to finish the soup add them to the boiling stock and cook 15 or 20 minutes, when ready to serve add a grating of nutmeg. Served with wafers and pickles.

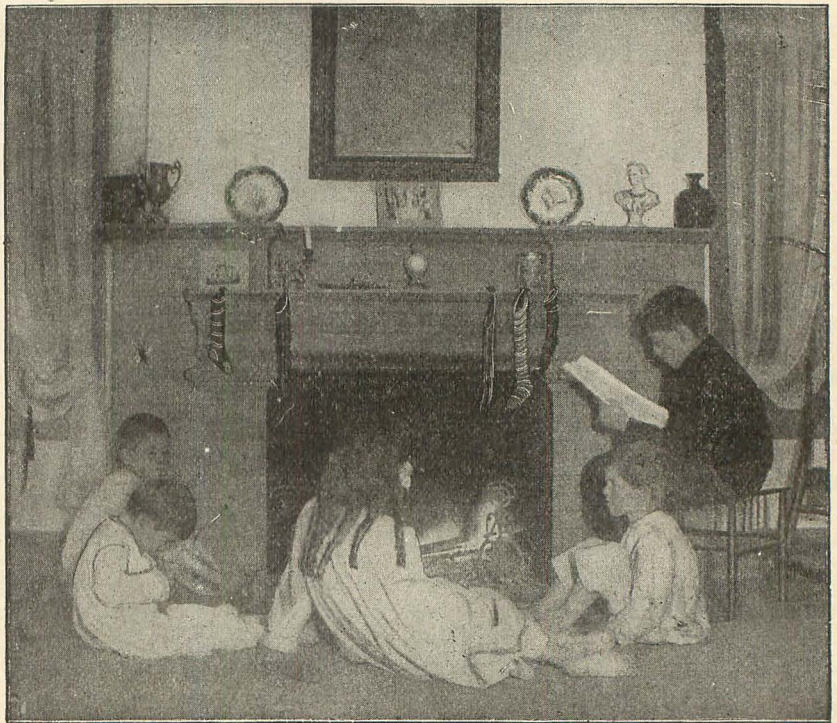
Any kind of stock is good,

Chop Suey

Chicken and veal thoroly cooked and chopped with mushrooms added and served with boiled rice and Worcester-shire sauce is an agreeable condiment.

Norwegian Crullers or Plattman's Bak-kells

6 eggs, the whites of two and yolks of six, beat separately; 6 tablespoons of of sugar; 6 tablespoons of thin sweet cream; a little salt. Add the whites and



When Hours Have More Than Sixty Minutes

cream and cake refreshed our enthusiasm and made the crowd feel at home.

The fifth course was given at the State Normal School building, consisting of delicious coffee and intricate forms of dainty cakes, and were served by maids in native dress, and in a most social manner, while the party numbering about one hundred and forty-four listened to a comical farce on "Club Women."

A journey and a feast in so many lands made it highly social and a very successful entertainment. Given on the evening of Nov. 20 th 1908.

Noodles

1 egg, salt, flour sufficient to roll very thin on the board; fold it twice, roll, then slice about one-eighth of an inch wide toss on the board with plenty of

flour to roll very thin; cut in any shape, diamond, stars or hearts, long or square, fry in lard like crullers. They fry quickly, drain on paper and sprinkle with powdered sugar. These are more wholesome in warm weather than doughnuts and will keep a long time.

Christmas for Children

We hope this Christmas found the little ones giving.

Giving to some poor little babe. Sharing with some who had nothing. Giving to the new ones next door.

'Tis sweet to be lead by the children, teach them charity free and simple and note their yielding and the happiness that is theirs for life, also the interest they will show for the object of their good will.

It will commence the New Year with good lessons, they will be on the watch for new opportunities to make each other happy and imitate the spirit in the story of the Shepherds, The Cradle, The Wise Men and The Holy Child.

Sweet Cider a Food

A short time ago the subject of sweet cider was the subject of official consideration in its relation to the ration allowed in the navy. A paymaster attached to one of the ships of war had occasion to spend \$6 in the acquisition of twenty gallons of that seductive beverage and the Auditor for the Navy Department held the bill against the purchasing officer, confronting him with the dire prospect of paying for the item

out of his own income. Upon appeal to the Comptroller of the Treasury, Webster's Dictionary was cited to show that "food is that which goes to support life by being received within, and assimilated by the organisms of animal or plant." Sweet cider, the officer stated, is clearly food, since it is a mixture of the juice of apples and sugar, both of which articles—the fruit and the sweetness—are parts of the legal ration, and if bought separately would have been regarded as a proper charge against the government. The Comptroller of the Treasury, also went to the dictionary using another brand of authority, to find that sweet cider was "cider before fermentation," and magnanimously decided in favor of the navy officer.

Highlands, these cattle have developed a ruggedness that fits them admirably for our western range conditions. Their flesh is of excellent quality, while their skins are valuable as robes, having long wavy coats of hair. Both of these sturdy Scotts refuse to wear clothing of any color other than the somber black.

Holstein-Friesian or simply Holstein is the breed name of the dairy cows of Holland. They are large black and white animals. Because of their heavy milk production they are a very popular breed in this country. Holstein milk is usually low in butter fat but rich in other solids, making it valuable food for young animals.

Guernseys are bred in the island of Guernsey between England and France. These cows are medium in size, have small horns, and yield good quantities of very rich milk. The colors are red, lemon, and fawn, usually with white markings. The Guernsey is an old and very excellent breed.

Jersey cattle are bred in the island of Jersey, another of the Channel Group. The purity of this breed is, and has been for centuries, very carefully guarded. They are small animals but the most popular dairy breed in America. The milk is very rich in butter fat. The colors are fawn, dun, and grey.

(b) Types. It is stated in the outline that cattle are classified as beef, dairy, and dual purpose. This refers to what the livestock man knows as **type**. The first and second of these are very well illustrated by the accompanying cuts.

ELEMENTARY AGRICULTURE

By G. W. Randlett, N. D. Agri. Col.

Fifth Month: Breeds and Types of Cattle

It will be the purpose of this series of lessons to amplify portions of the State Course of Study. The topics selected will not necessarily be the most important, nor will the discussions be exhaustive, but will, it is hoped, be suggestive. Topics will be selected each month from the outline of the succeeding month. As the work for January is on livestock, breeds and types are the topics selected for this lesson.

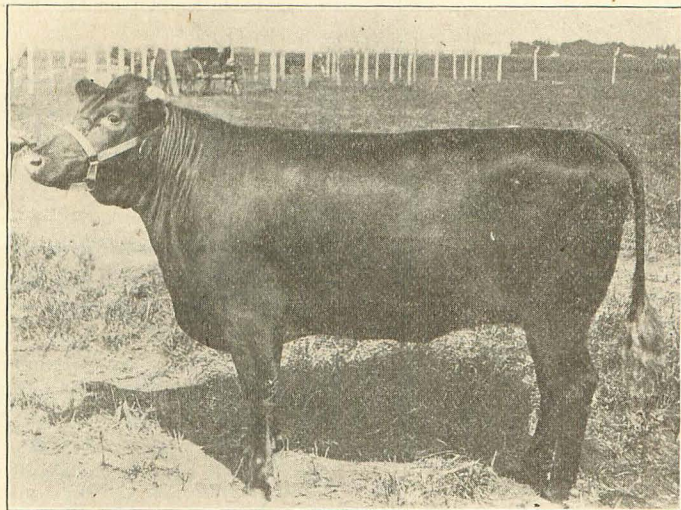
(a) Breeds. All breeds have come from a common aboriginal ancestry. The vast differences in size, color and utility are the results of climatic and food conditions, and of the different purposes and tastes of the breeders.

The Shorthorns are large beefy animals because their native home in the northeast of England is a section rich in the most nutritious of grasses, grains, and roots. Their large size together with good quality of flesh and a tendency to mature early easily make Shorthorns the most popular beef breed in America. Their colors are red, white, red and white, and roan. These colors too are the result of the breeders' fancy, for they could as easily have fixed some other as yellow or black. The first representatives of the breed were brought to this country about one hundred years ago.

In the Hereford breed the English people have made another fine contribution to the world's livestock interests. These cattle were developed in a rich grazing section in the west of England, where they still may be found in great numbers. Henry Clay was the first to import these cattle to this country, bringing several head to Kentucky in 1817. The early breeders were very

particular about color in this case, and as a result every pure bred Hereford must have a clean white face. The under part of the body, legs, and tail are usually white, while the upper part of the body is red. Herefords are invariably red and white and because the face is **always** white are often called "whitefaces."

The Aberdeen-Angus-Polls are Scotch cattle with early maturing cylindrical bodies. They never have horns, tho



Moss Rose Springdale 3rd.

just how they lost them is quite a mystery. The prominent poll (top of the crown), outstanding ears, and mild eyes give to the Angus an innocent good humored appearance.

The Galloway breed is also Scotch and without horns. The animals are not quite as large, neither do they mature quite as easily as the Angus. Bred for centuries among the bleak Scottish

Moss Rose Springdale 3rd is a pure bred Shorthorn yearling heifer bred by Mr. S. Fletcher of Matteson, N. D. and illustrates correct beef type. Now look at her picture and note the following points. The line along her back or top line is straight. The underline is also straight and these two lines are **parallel**. Now imagine the head and neck off at the point of the brisket (fold of skin be-

low and in front of the shoulder point) and you will see that the front and rear lines are parallel. The width of the broad back is so well carried both forward and backward that the whole back of the animal presents a well defined parallelogram; hence the parallelogramic form of the beef animal. Moss

Primrose Tricksey has almost perfect form. She is a beauty and a queen of her kind. Her abilities as a producer will be discussed in the next lesson. The top line should be straight from withers to tail head. The sloping rump is a point against her. The underline, however, is exactly as it should be. These



Primrose Tricksey 7236.

Rose in all her proportions is deep, broad, and well fleshed.

Notice that her head and face are rather short and broad, that her neck is short and thick and blends into the shoulders. Notice too that her shoulders are smooth with an abundance of fine fleshing, that the ribs are deeply covered, especially the upper portion, and that the hook points (hip bones) are scarcely perceptible. The back of this heifer is broad as well as straight, while the flesh over the loins (region just in front of the hip) is especially deep. Breeders pay much attention to the fleshing along the back and loin because the choicest cuts of meat are produced here. Moss Rose has plump thighs with outcurving lines that would yield most excellent round steak and consequently does not have room for a large udder. She does not need it, however, as it is not her business to produce milk. If you could see this young beauty and place your hands upon her you would find her hair soft and fine; her skin loose and pliable; and her flesh firm, elastic, and evenly distributed.

Now look at Primrose Tricksey 7236. She is a pure bred Guernsey, reared among the rich clover fields of a Wisconsin dairy region. Note the difference in general appearance of these two cows. Contrast the spare, angular, bony frame with prominent spine and large stomach with the well fleshed, smooth, compact, broad backed, symmetrical body of Moss Rose. Yet

two lines projected forward would meet forming an angle. This is known as the side wedge. Similarly lines drawn upward over the shoulders would meet at the withers (region where the shoulder blades come together) forming an angle. As this may be seen best from a position in front is known as the front wedge.

Again lines drawn from the hook points to the withers form an angle—the top wedge; hence the triple wedge shape of the dairy cow in strong contrast to the parallelogramic form of the beef cow. Again Tricksey's ewe neck is very different from the plump neck of Moss Rose. It is refined, of medium length and ends abruptly where the shoulders begin. Her shoulders, ribs, and loins are scantily covered, her withers are very lean and thin, her hips are wide, thighs long but very thin and spare. The lines that were curved outward in the thighs of the beef heifer are here curved inward. This pair of thighs is not intended for round steak, but together with the high cut flank or double curved underline give ample room for the large well-developed udder which she must possess. Notice too the large tortuous milk veins just in front of the udder. These indicate a plentiful supply of blood thru the organ and are considered by dairymen as a strong point in favor of the animal possessing them.

Tricksey, however, has some points in common with Moss Rose. Both have fine soft hair and a loose pliable skin. The right kind of hair and skin is what the stock man calls "handling" and upon the quality of the animal. Both of these cows have quiet dispositions and good digestive systems. Their purposes in life, however, are as opposite as their forms: one with a well developed back to produce the best meats, the other with organs at the opposite side of the body developed to yield dairy products in largest amount and of choicest quality.

Shade Trees and Gardens.

C. B. Waldron, N. D. A. C., Editor.

THE MAINE STATION AND POTATO GROWING

Probably no state experiment station in the country has done more work of real value to the farmers than the Maine Experiment Station at Orono, Me., has done for the Potato growers of Aroostook county, that state.

While the work of the Maine station has been mainly with Potato diseases and their treatment, Director Woods and his assistants have from time to time considered other matters which will in time, without doubt, have a bearing of importance to the agriculture of Aroostook. Among these are the effects of the different ingredients that go to make up commercial fertilizer upon the Potato; the home mixing of chemicals for fertilizing purposes;

different methods of Potato culture; the effects of different insecticides; the desirability of conserving moisture for the Potato by level culture versus the high ridge commonly used; the use of agricultural lime with the growing of Clover; and in a small way the breeding of Wheat, the last-mentioned in an attempt to produce a Wheat particularly adapted for that section.

It will be interesting to consider briefly the benefits of the work of Dr. Woods and his assistants as it relates to the present day in treating the diseases of the Potato. Nothing within recent years has been so beneficial to the country as a whole as the spraying of Potatoes with Bordeaux mixture to prevent blight.

It has been said by conservative farmers that by the proper use of ap-

plication of Bordeaux mixture, their crop of Potatoes had been increased 25 to 33 1-3 per cent. Taking these figures as a basis and a Potato crop of 20,000,000 bushels and a price of 50 cents per bushel for the shipping stock it will readily be observed that the benefits of spraying alone go into large figures. Following along this line of thought would it be unfair to ask that if Bordeaux mixture had not been applied, would not the crop some seasons have been a total loss?

It may not be out of place to consider briefly at this point conditions that confronted Aroostook county as a whole at the time the station began its work upon a farm in Orono. At that time the average good crop was in the neighborhood of 75 barrels per acre. Fertilizer sufficient for the needs of the soil at that time could be had for \$30 per ton and farm laborers for \$16 to \$20 per month. Today it is necessary to pay near to \$40 per ton for fertilizer and \$30 or better per month for labor, and if there had not been an increase in the total crop production from 33 1-3 to 100 per cent, the farmer's balance sheet would have shown serious results.

The work of the station has been very interesting from the standpoint of an educator, as it has without doubt inculcated a desire to know more as to scientific farming and was instrumental to a large extent in bringing about the system of intense cultivation so well practiced now thruout Aroostook county.

Whether or not these matters would have been met thru some other agency than the station and the same results brought about is a question no one could probably answer with any degree of positiveness. It is sure, however, that had this matter been left to the working out by the individual farmers, it would have taken a much longer time to have awakened the widespread interest thruout Aroostook county, and that the systematic work of Dr. Woods and his assistants put the whole matter before the farmers in such a way that the recommendations of the station were adopted, and so thoro and complete were they that 99 per cent of the farmers in the county are working strictly within the lines laid down by the station.

FIRST NATIONAL FOREST EAST OF MISSISSIPPI CREATED

To Florida goes the distinction of getting the first National Forest created east of the Mississippi River. President Roosevelt has just signed a proclamation setting aside and naming the Ocala

National Forest in Marion county in eastern Florida and another proclamation creating the Dakota National Forest in Billings county, North Dakota. Inasmuch as the last named National Forest is the first in North Dakota, the two proclamations add two more states to the list of those wherein land will be put under scientific forest administration. There are now nineteen states, and Alaska, having National Forest.

Before the creation of the Ocala, in Florida, the two forests in Arkansas, the Ozark and the Arkansas, were the easternmost National Forests. Practically all the other National Forests are in the Rocky Mountain and the Pacific Coast States. The Florida forest has an area of 201,480 acres, of which about one-fourth has been taken up under various land laws. It covers a plateau between the St. John's and Ochlawaha rivers and at no point is an elevation exceeding 150 feet above sea level obtained. The area is by nature better fitted for the production of forest growth than for any other purpose. Nearly all of the area, however, seems particularly well adapted to the growth of sand pine, which is even now replacing the less valuable species, and with protection from fire almost the entire area will in time undoubtedly be covered with a dense stand of this species. The long-leaf pine, a much more valuable commercial tree than the sand pine, appears rather sparsely on this Forest and is confined principally to the lower flat lands along the streams on the borders of the Forest.

In addition to the pines and scrub growths, bald cypress, cabbage palmetto and tupelo gum, gradually changing to water oak, ash, elm, magnolia, hickory, and maple are found bordering the numerous ponds and lakes which are scattered abundantly thruout the confines of this Forest.

Fire has played a very important part in bringing about the present poorly forested condition of the Ocala, as year after year large fires have burned uninterruptedly over this tract, killing all vegetation and consuming the humus of the soil. Naturally protected portions which have not been subject to the

flames, prove positively however, that the soil will rapidly respond to a little care taking and that the prevention of fires would eventually mean the reforestation of practically the entire area.

No sawmill operations have been conducted on the area included in the Ocala National Forest. Turpentine by boxing is carried on over contiguous areas and thru the careless and antiquated methods used the future pine crop of the adjoining region is greatly jeopardized. The soil is of little value for agricultural purposes and about the only crop which can be produced that will be of lasting value is sand pine, and with proper care and attention there should in time be a valuable forest of this species.

The new Dakota National Forest consists of 14,080 acres in the Bad Lands region. It is located in Billings county and lies an equal distance between the Northern Pacific Railroad on the north and the Chicago, Milwaukee and St. Paul on the south. Its creation is important for it means that an experimental field of forest planting has been secured in North Dakota, the least forested state in the Union, having only one per cent of tree growth. The Forest Service expects to establish forest nurseries with the hope that in time to come the area may be reforested by artificial means. This feature is expected to prove a very good object lesson to the settlers, who it is hoped will in turn plant windbreaks around their farms.

The Forest is very open and for the most part contains a scattering stand of western yellow pine timber. Along the creek bed is found ash, box elder, cottonwood, elm, and birch. Cedar breaks are also found on precipitous slopes bordering the streams. Western yellow pine is the only merchantable species, however, on the Forest and the average stand per acre is not over 2,000 feet. The reproduction of pine is

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Timothy, Clover, Bromus, Buckwheat,
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FARGO SEED HOUSE, - - - Fargo, N. D.

fairly good wherever mature trees occur, but owing to the open condition of the Forest and the dense growth of grass it is for the most part unsatisfactory.

There is but little timber that will be sold from the Forest at the present time since this area is very isolated, being surrounded on all sides by vast plains. Many homesteaders have in the past come to this Forest for timber for logs to build their houses. Since the completion of the Chicago, Milwaukee, and St. Paul, R. R., Billings County is rapidly being settled and while stock grazing is at the present time the most important industry it is very probable that farming will become the most important industry within the next few years. It is very important, therefore, that the timber which now remains should be conserved exclusively for the use of the home builder.

At the present time there are but seven homesteaders within the boundaries of the Forest, but all of the odd sections are alienated land being owned by the Western Land Securities Company. This company has been selling portions of their holdings during the past few years. Very little of the

Government land within the boundaries of the Forest is suitable for farming purposes, since it is quite rough and broken and water is very scarce. It is the country outside of the Forest which is now being taken up by settlers.

No sawmill operations have ever been conducted on the area. When the Northern Pacific R. R. was being built a large number of trees were cut for railroad ties and together with the logs which have been procured for house building by settlers this is the only use which has been made of the timber on the Forest. It is understood that the logs used in the construction of President Roosevelt's cabin, which now stands in the State Capitol grounds at Bismarck, N. D., were obtained from the area now included in the Dakota National Forest.

Governor Burke of N. D., is very much interested in this Forest and thinks it will be of inestimable value to the people who live in the region where the Forest is created.

Both of the new National Forests, the Ocala in Florida, and the Dakota, will be put under administration by the Forest Service as soon as possible.

ing sold them in sealed packages under the name of paint, some of which, as sold in the State of North Dakota, is far inferior to a decent white-wash in its wearing qualities. This is not true, however, of well-made paints and of the better class of paints on the market; and such men as are manufacturing high grade paint should be ashamed to be found in company with those who desire to continue the perpetration of fraud.

It has, further, been said that it is a move on the part of certain food commissioners to gain notoriety and to bring themselves conspicuously before the voters. For one, I desire to go on record as saying that I believe such statements are absolute falsehoods, and are being used by those paint manufacturers who would make such statements for purposes of deception and fraud, the same as they have perpetrated upon the public in the past in the sale of some of the paints which have been put upon the market.

There is no reason why the painter should not let the consumer know, even in his case, what product he is using upon the buildings, or wherever he has any contract. If the contract calls for a given manufacture of paint, or for a given composition, and the painter has not furnished it, he should be prosecuted to the full extent of the law; and I believe, in the near future, this course will be followed. In fact, there have been cases in North Dakota where even the painters have been made to pay for damages, where they have substituted in paint ingredients. We say, Let the good work go on; let there be enacted State and National Law to protect the consuming public, for this is an age of fraud and deception, and hardly a line of manufacturers but what seem to be yielding to the temptation of lowering the standard and quality of their goods or manufactured products. This condition may have been forced upon them by competition and by methods of deception, which have been practiced in educating the public to false standards instead of aiding them to a correct knowledge. The honest manufacturer, of every product, should use his influence to inform the public where deception is now being practiced; and with such a course we shall soon see an increased demand for superior products.

If a house is painted with a cheap "dope," its surface is ruined for receiving a good paint thereafter, and the application of a good paint over such an inferior product is bound to prove disastrous and injure the reputation of the well-made paint, when, in reality, the fault lay in the original "dope" which was employed. The sooner the public come to appreciate this fact, the better will it be for all.

OILS, PAINTS, AND PAINT PIGMENTS.

PAINT LEGISLATION

A great deal has been said during the past year and more, with regard to the advantages and disadvantages of paint legislation. This has come pretty largely as the result of the enactment of the Paint Law in North Dakota and the publishing of information as given out in bulletins and reports, notably in bulletin No. 70, with regard to the character of paints and paint products sold in the state previous to the enactment of the Paint Law.

It is a peculiar coincidence that the National Paint Manufacturers' Association first put themselves on record in favor of National Legislation and even of such State Legislation as would afford proper protection to the consuming public. They offered no objection from the standpoint of the manufacturer, but later they seem to have seen a new light. They have reversed their former decision and maintain that to give a formula or statement of the composition of the paint is to deprive the manufacturer of the property right in his formulas without due compensation. Such attitude is most ridiculous, for when any average chemist can determine with sufficient accuracy the composition of a paint and show whether it is as represented to be or not and at a cost of not to exceed \$50, there is no giving up of formula rights. The fact is that certain

manufacturers desire to continue some of the questionable methods which have been adopted in the past, and if they were forced to inform the public of what their paint is composed or how manufactured, they would lose their trade, as they well deserve to do.

There is a bunch of eastern manufacturers who seem to be making trouble for themselves, for if ever there is given the composition of some of the paints manufactured by these men, who are fighting national legislation and who have been shaping up some of the action of the Paint Manufacturers' Association, they may well feel ashamed of the "property rights" of which they have been deprived without due compensation.

It is said that the formula label is a snare and a delusion. It offers no intelligible information to those most concerned, but it does give the frauds of the trade an opportunity, which they have not overlooked, to offer to duplicate the most successful formulas at ruinously low prices. If this statement were true it would be a sad comment on the business of the paint manufacturer. If the manufacturers have been making such enormous profits that their paints can be duplicated almost without cost, it is time the public should know it. Such a statement, however, is absurd, and no man knows this better than the paint manufacturer himself. The consuming public have a right to know what is be-



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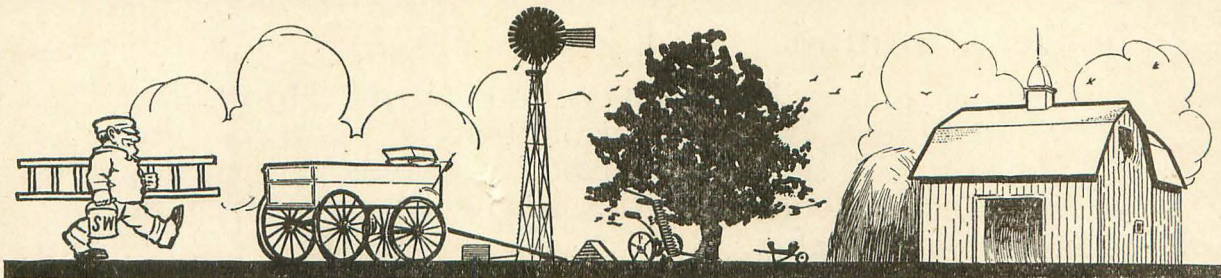
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